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THE MAJOR ROLE OF THE PHYSICIAN IN THE CANADIAN DISABILITY ALLOWANCES PROGRAMME

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PROGRAMMES for disability allowances under a joint federal-provincial scheme have recently been implemented in all 10 of our Canadian provinces. The necessary legislation was passed by the Parliament of Canada during the last session and came into force by proclamation on January 1, 1955. Several of the provinces started their programmes on that date while others delayed the commencement until April 1, 1955.

The primary purpose of this legislation is to provide authority for financial assistance to permanently and totally disabled persons for whom rehabilitation and other forms of therapy offer no alternative to dependency. The costs of the allowance are shared equally by the federal and provincial governments and provide up to $40 monthly for each eligible person. The programme is administered provincially, and non-medical eligibility factors include the means test, age determination and residence requirements. These factors are the responsibility of the agencies administering the programme. The medical factors pertain to an assessment of the disability, and recommendations in this regard are made by a medical review board composed of physicians representing both the federal and provincial governments and, in most cases, a social worker.

Because this programme provides allowances for permanently and totally disabled persons, it is expected that a considerable proportion of the physicians in Canada will play an important part in its development. The purpose of this article is to inform physicians of the way in which the programme was developed and to describe features of particular interest to the medical profession.

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STEPS IN PRELIMINARY PLANNING

When it was decided that financial assistance was to be provided for permanently and totally disabled persons, officers of the Department of National Health and Welfare visited one or two provinces in Canada and several states in the United States to study similar programmes already in operation. Following this appraisal, meetings were held with representatives of the Canadian Medical Association and other interested groups. In addition, outstanding Canadian physicians were consulted. Draft material was prepared and was used as a basis for further talks before the medical part of this programme was made final.

A definition of permanent and total disability was prepared to serve as a basis for the interpretation of this term. A guide manual was written to help personnel on medical review boards in each of the provinces carry out this type of disability evaluation.

When the material described above was in final form, the whole subject was discussed at regional meetings with members of the medical review boards and provincial administrators. Three principles were strongly supported at these meetings:

1. A good medical work-up of each case was considered essential.
2. Medical evidence should be reviewed by competent medical authorities.
3. Emphasis should be placed on rehabilitation for suitable cases.

DEFINITION OF PERMANENT AND TOTAL DISABILITY

The definition of permanent and total disability is set out in the Regulations under the

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Disabled Persons Act. As defined in the law, the terms "permanently" and "totally" are not used in their absolute sense, and the definition is so worded that persons will be eligible if they have disabilities which appear to be permanent and which are of sufficient severity to be considered total in their functional effect. In order to be considered permanently and totally disabled, as defined, the person must be suffering from a major impairment which is likely to continue and which severely limits him in self-care and normal living activities. If rehabilitation or therapeutic measures appear likely to offer a good prognosis, the person will not be considered permanently and totally disabled when such services are available. The definition covers both physical and mental disability.

As this is an application for a pension, it was appreciated that the examining physician might be subject to pressures. It was to avoid putting him in this position that the provinces were advised not to burden him by requesting him to state whether he considered that the applicant was permanently and totally disabled. What the examining physician is requested to do, however, is to provide as clear a picture of the applicant's medical condition as is possible, and this places the responsibility on his shoulders for completing a comprehensive medical work-up of the case. This work-up is essential to enable physicians on review boards to judge eligibility on the basis of the data provided by the examining physician.

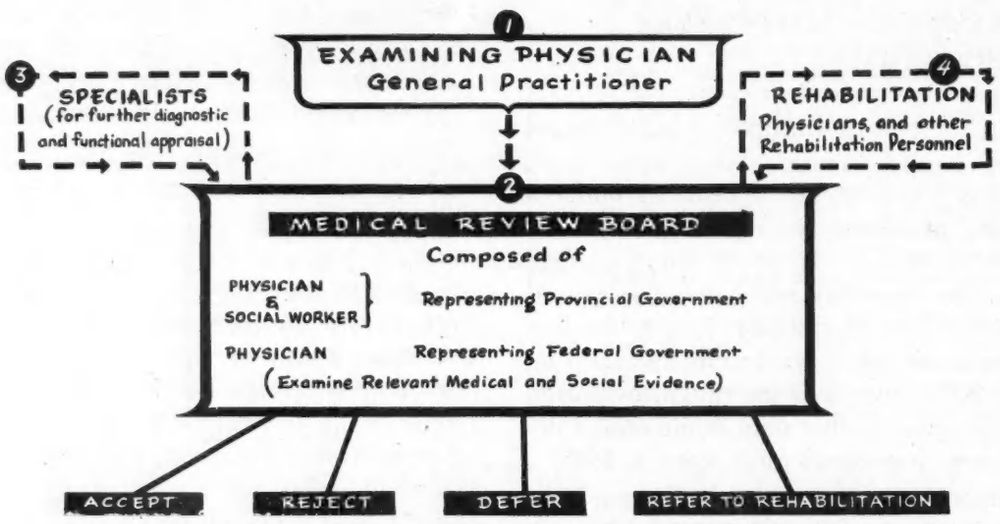

Fig. 1.—Role of the physician in disability evaluation under the Disabled Persons Act.

The remainder of this article deals with the role of the physician in this programme, under four headings and as illustrated in the accompanying diagram: (1) the role of the examining physician; (2) physicians on medical review boards; (3) the role of specialists; (4) referral for rehabilitation to physicians and other rehabilitation personnel.

1. The Role of the Examining Physician

The physician who examines the applicant is perhaps the key person in this programme. The essential detailed information for any subsequent just decision in evaluating disability must be provided by the practitioner. In many instances he will be well acquainted with the applicant, but in other circumstances he may be seeing the applicant for the first time.

What, then, is the nature of the data expected to come from the examining physician? While the most obvious answer might appear to be that a diagnosis of the condition is required, a diagnosis in itself is not sufficient. Of equal if not greater importance is the functional effect of the impairment resulting from the disability of the applicant. This functional appraisal is of the essence, and is a factor which is frequently disregarded in the completion of the medical report. In addition, the practitioner should give an indication of prognosis, so that the permanence of the condition can be established. He may also wish to note whether, in his opinion, further diagnostic procedures should be carried out in a specific case. In some circumstances, he might also indicate that a specialist should be consulted. Recommendations of this type from the examining physician are of great assistance to

physicians on the medical review board who must evaluate the information contained in the examining physician's medical report.

In order to assist examining physicians in submitting a comprehensive medical report, the provinces were supplied with a guide medical report form. The form was drawn up after extensive consultations with the medical profession and with persons experienced in disability evaluation. A study was made of medical report forms issued by insurance companies and by others actively engaged in similar programmes.

In drawing up the guide form, two principles were kept in mind. First, it was devised to provide a comprehensive medical background of the disabled person. Second, an effort was made to draft a form in a way which would require the examining physician to do a minimum of actual writing. For these reasons, it was decided that the form should include as many details as may be required in any type of case, but at the same time it was decided to request the examining physician only to fill in positive and relevant findings. The chief criticism of the form to date is that it is too elaborate and its completion is too time-consuming. These points are being kept in mind and changes will be made if experience indicates that another type of approach will provide sufficient medical information to ensure satisfactory assessment.

2. PHYSICIANS ON MEDICAL REVIEW BOARDS

The medical report forms completed by the examining physician are sent, with the application for allowances and a social report, to the provincial welfare agency which administers the disability allowances programme. Since medical factors pertaining to eligibility can only be evaluated by medical personnel, the provincial agency is advised on these factors by physicians appointed for the purpose. Each medical report, therefore, is reviewed by a physician representing the provincial government as well as a physician representing the federal government. These physicians, who are doctors of considerable standing, rely very heavily on the information supplied by the examining physician. In the majority of cases the information is sufficiently comprehensive to facilitate a decision as to whether the applicant is medically eligible for an allowance within the meaning of the law. To a great extent, too, the information supplied by the examining physician indicates whether rehabilitation or other therapeutic measures should be initiated. On the other hand, there are cases, particularly borderline cases and cases with multiple disabilities, where the data supplied by the examining physician indicate the need for further diagnostic procedures or for special examinations. The facilities for providing these procedures through the availability of funds from the provincial and federal governments are at the disposal of the physicians appointed to the medical review boards. This permits them to utilize facilities which may not have been available to the examining physician. The referral of a case to the specialist, therefore, is no reflection on the examining physician, and such a referral is handled in an ethical and diplomatic fashion.

When the board has before it all of the information it has sought, it will make one of four recommendations to the provincial authority. These recommendations will be: (i) accepted, (ii) rejected, (iii) deferred, (iv) referred for rehabilitation.

Cases falling into the first of these categories, *accepted*, will be those in which the board is satisfied that the person is permanently and totally disabled as defined in the regulations. In some of these cases, the board may wish to reexamine the information within a specified period of time, particularly for borderline cases or when scientific developments are likely to offer therapies which were either unknown or unavailable when the board made its initial decision.

The board will recommend the *rejection* of an application when, in its opinion, the disability is not permanent and total as defined in the regulations.

The board may also wish to withhold any final recommendation in certain cases because the person's condition was not completely stabilized at the time of the application. It is expected that decisions of *deferment* will be taken by the board when a condition causing major disability is still active or the patient is convalescent and the extent of the residual functional impairment is not yet clear. For example, this might apply in cases of tuberculosis or poliomyelitis which are still in an active state and in which the degree of permanent functional impairment cannot yet be assessed. In such cases, the board will undoubtedly suggest that the application be submitted again within a prescribed length of

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time along with new and up-to-date medical, and possibly social, information.

The board will refer to *rehabilitation* all of those cases which, in its opinion, appear to be likely cases for such procedures. This referral to rehabilitation will in no way prejudice the applicant's later request for allowance should it be found that rehabilitation is not feasible or not available. However, when a favourable rehabilitation prognosis is obtained as a result of the board's referral, the case will be transferred to the rehabilitation programme.

3. THE ROLE OF SPECIALISTS

As indicated above, the physicians on the review board may request special examinations or diagnostic procedures in order to complete the medical evidence required to assess a case properly. Specialist opinion is frequently needed for certain types of disability such as psychiatric conditions or cardiovascular complaints. It is of particular value in borderline cases or where multiple disabilities contribute to the total picture. In some cases, hospital diagnostic procedures or laboratory investigations are indicated, and federal and provincial funds are available for this purpose when the investigations have been authorized by the physicians on the medical review board.

4. REFERRAL FOR REHABILITATION TO PHYSICIANS AND OTHER REHABILITATION PERSONNEL

The Canadian approach to disability allowances stresses that the rehabilitation potential and possible benefits from therapy be carefully assessed for each applicant. In fact, the constructive approach to permanent and total disability lies in this emphasis. Therefore, physicians on medical review boards act as a screening group to determine which cases appear amenable to rehabilitation procedures or therapeutic measures.

The medical review board itself does not carry out the rehabilitation assessment, since it does not as a rule examine individuals nor does the board have the necessary facilities available for a rehabilitation assessment. For these reasons, it has been recommended that the board limit its activities to preliminary screening and refer all potential rehabilitation cases to a rehabilitation assessment team for the personal appraisal of the applicant. In addition to physicians the team will include representatives of other disciplines essential for comprehensive rehabilitation.

These rehabilitation assessment teams will, in most cases, be located in hospitals or rehabilitation centres and will be concerned not only with cases referred from the disability programme but also with other disabled persons who might benefit from these procedures. Physicians will play a prominent part in this over-all assessment, being concerned not only with medical rehabilitation but also with other aspects of the total process requiring medical knowledge. While the team concept is stressed in this type of assessment, it should be emphasized that each case does not necessarily have to be seen by all of the members of the team, and many cases can be handled by a smaller nucleus group.

This approach to assessment is being demonstrated by developing patterns in several of our provinces. For example, medical directors have been appointed to assist the provincial rehabilitation co-ordinators to develop the medical aspects of the programme. In these circumstances, the client is usually assessed by a small group capable of determining the medical, psychosocial and vocational implications. Arrangements have also been made for the medical director to consult with other medical specialists as required to assist in working out the rehabilitation formula for the individual.

While a somewhat different approach may be adopted in other provinces, this streamlined technique appears to be favoured in most cases. It is an approach which was established for our veterans by the Department of Veterans Affairs and its application to the civilian field seems warranted by its outstanding success. Another principle which is emphasized by our veterans' programme, and by others, is that medical personnel carrying out this assessment should be actively engaged in rehabilitation treatment.

Many of our physicians will, of course, participate in carrying out the medical and other procedures recommended for disabled persons. In some circumstances the family physician will handle the case, whereas for others facilities of a large hospital or rehabilitation centre might be required. In all circumstances, the objective will be to restore the disabled individual to his fullest physical, mental, psycho-social, vocational and economic capacity.

It is obvious that in such a programme medical leadership is essential; the medical profession has a challenge to meet in this regard. A recent meeting sponsored by the Committee on Rehabilitation of the Canadian Medical Association went a long way in setting out principles for professional participation. However, these principles must be accepted by the profession as a whole in order to ensure proper professional leadership. Rehabilitation is not the third phase of medicine, but rather a part of good complete medical treatment.

RÉSUMÉ

Le but du programme des allocations pour infirmités récemment institué d'après une entente fédérale et provinciale est de permettre d'accorder une aide financière aux personnes souffrant d'infirmités totales et permanentes et pour qui la réhabilitation ne peut rien offrir d'autre que la dépendance. L'aspect médical de l'administration de ce programme consiste en la détermination du degré d'infirmité. Une commission médicale comprenant des médecins représentant les gouvernements fédéral et provinciaux ainsi qu'un assistant social en est responsable. Dans la préparation des normes devant servir à cette évaluation, trois principes fondamentaux furent énoncés, à savoir: (1) l'importance essentielle d'une bonne documentation médicale dans chaque cas; (2) la revue des autorités médicales compétentes des preuves médicales soumises; (3) la réhabilitation des cas qui s'y prêtent. Il est à voir que les termes "permanent" et "total" ne sont pas pris dans leur sens absolu. Toute personne subissant les effets d'une incapacité majeure, qui semble vouloir se perpétuer, et qui impose des limites restreintes à sa capacité de gagner sa vie et à ses habitudes de vie normales, est éligible. Ces termes s'appliquent aussi bien aux infirmités mentales qu'aux infirmités physiques.

Le médecin examinateur est sans doute le protagoniste le plus important de ce programme. Sa responsabilité consiste à donner une image aussi nette que possible de l'état de santé du candidat. Ces renseignements seront contenus dans un dossier aussi complet que possible. En importance égale au diagnostic, sinon davantage, sera l'évaluation des effets fonctionnels de l'infirmité en cause. Le médecin devra aussi faire un pronostic et demander l'application de procédés diagnostics supplémentaires ou de consultations, s'il le juge à propos. Une formule a été adoptée cherchant à donner un aperçu de l'état de santé du candidat, tout en cherchant à réduire au minimum les efforts de rédaction du médecin, en exigeant de lui qu'il ne donne que les constatations positives et pertinentes.

Ces renseignements sont envoyés à la Commission où des aviseurs médicaux en prennent connaissance et voient à ce qu'ils soient complétés si nécessaire par une consultation ou diverses épreuves spécialisées auxquelles le médecin examinateur n'avait pas accès. L'opinion de spécialistes en diverses matières (psychiâtrie, cardiologie, etc.) sera requise dans certaines circonstances. La demande du candidat recevra l'une des quatre réponses suivantes: acceptée, rejetée, remise, ou recommandé pour la réhabilitation.

L'attitude canadienne vis-à-vis des allocations pour infirmité consiste à individualiser les cas et voir à ce que toutes les possibilités de la thérapie et de la réhabilitation aient été épuisées chez chaque candidat avant qu'il ne soit accepté. Même si l'esprit d'équipe est encouragé, il ne faudrait pas s'imaginer que chaque candidat doive être vu par tous les membres, puisqu'il va sans dire qu'un bon nombre de cas pourront être réglés par une partie seulement du personnel. Ce programme a déjà servi aux vétérans dans l'administration des affaires des anciens combattants, et il semble pouvoir s'appliquer aussi bien à la population civile. Il est à peine nécessaire de souligner l'importance du rôle de la profession médicale dans une telle entreprise. M.R.D.

THE SYNDROME OF ALICE IN WONDERLAND

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THE PURPOSE of this paper is to draw attention to a singular group of symptoms intimately associated with migraine and epilepsy, although not confined to these disorders. While there is wide appreciation of the fact that epileptic subjects, and their blood relatives, are prone to experience bizarre disturbances of the body image, few realize that essentially similar disorders affect migraine subjects and their families. As a result, many of these patients are unjustifiably dubbed "neurotic" and referred to a psychiatrist, while others torture themselves with secret misgivings concerning their sanity. The writer proposes to describe the experiences of these patients under the general heading "the syndrome of Alice in Wonderland", not only because it is germane as a descriptive term, but also because it has the merit of drawing attention to the fact that Lewis Carroll himself suffered from migraine.[5] It will be remembered that Alice, in her dreams, sometimes became remarkably tall or remarkably short. However, she was sometimes aware of changes of an altogether more subtle nature. Thus, there were occasions when she was conscious of some intangible change in herself and her environment. There were also times when she addressed herself as though she were two people, and others when she puzzled over her own identity. In technical terms, she had feelings of hyperschematia, hyposchematia, derealization, depersonalization, and somatopsychic duality. There

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are good reasons for including certain other symptoms within the general purview of the syndrome; they include illusory changes in the size, distance, or position of stationary objects in the subject's visual field; illusory feelings of levitation; and illusory alterations in the sense of the passage of time.

EXAMPLES OF THE SYNDROME IN THE LITERATURE

There are few examples of the complete syndrome in the literature, discounting descriptions of the artificial and perverted experience of subjects under the influence of phantastica drugs (mescaline, etc.). Coleman[3] quoted the case of a young woman with incipient schizophrenia who "like Alice in Wonderland" would "sometimes feel that she was shorter, sometimes that she was taller than she used to be." Lippman[5] described several cases which fit neatly into the picture. One of these, a middle-aged woman with a strong family history of classical migraine, suffered from recurrent headaches with nausea, vomiting, and visual disturbances. She described her more florid symptoms as follows: "I also suffered the illusion of being much taller than I actually am, in relation to ordinary objects. My head would seem far above my hands, far above table tops, etc. At other times, I seem to be ('astrally', I suppose you'd call it) detached from and above my physical body, to be able to observe it and make mental notations concerning it as a separate entity." Hécaen and De Ajuriaguerra[4] cite the case of a woman prone to attacks of right-sided Jacksonian epilepsy, who developed "equivalents" in the form of disturbances of the sense of body image. These she described thus: "I suddenly get the impression that the road is bending about in a zig-zag fashion; I feel as though I'm quite small and surrounded by a vast space. I feel very small—like a child." The cases described below depict the salient features of the syndrome.

CASE REPORTS

CASE 1

A single woman, aged 39, was referred to a psychiatric clinic with an anxiety neurosis complicated by an intermittent disorder of the body image which had worried her since childhood. She complained of recurrent attacks during which she feels that her body is growing larger and larger until it seems to occupy the whole room. "I feel," she said, "that I have got so big that if I put out my hand I could touch the far wall." Less frequently, she feels that she is getting smaller, "shrinking up completely", and that her hands will "drop off and disappear." Her commonest symptom, however, is a feeling that her abdomen is expanding prodigiously. During these crises she is petrified with fear. The attacks, which terminate abruptly, are particularly liable to occur when she is in a state of anxiety or when she has some febrile illness. It is interesting to record that, in discussing her symptoms, she actually referred to Alice in Wonderland. The family history was negative for migraine, but a brother suffered from grand mal epilepsy. Her electroencephalogram was normal.

Commentary.—In this case, anxiety and febrile states favoured the appearance of body-image disturbances in a person with a family history of epilepsy.

CASE 2

A single man, aged 40, was referred to a psychiatric clinic with an anxiety neurosis associated with subjective experiences of a peculiar nature. These consisted in a recurrent feeling that he was much taller or shorter than was actually the case. Sometimes he felt that he was eight feet tall, but at other times he felt as though he had shrunk to a mere three feet. In addition, he was often conscious of a feeling that his head was "twice its normal size and as light as a feather" or that one or other of his arms was missing. Not infrequently he noticed that objects appeared unusually small and distant (teliopsia) or unusually large and close (peliopsia). There were also times when he was aware of a gross aberration in his judgment of time. He had suffered severely from attacks of migraine of many years' duration. Throbbing headaches were preceded by zig-zag flashes of light, vertigo and paræsthesiæ affecting the limbs. Nausea and vomiting often accompanied the headaches. The family history was negative for both migraine and epilepsy.

Commentary.—In this case, the classical symptoms of migraine were complicated by metamorphopsia and distortion of the body image.

CASE 3

A housewife, aged 24, was referred to a psychiatric clinic with "bizarre subjective sensations" of five months' duration arising in the course of a mild obsessional neurosis. Periodically she felt that her stature had altered—"the ground comes up and I go down or vice versa, so that sometimes I feel myself to be six inches tall and sometimes twelve feet." She was occasionally conscious of an illusory feeling that her feet were a yard long, or that she was going up or down hill, when actually walking over flat ground. She also complained of a tendency to lurch into articles of furniture in the absence of a feeling of giddiness. Furthermore, on two or three occasions she had experienced a transient sensation of being "split", accompanied by an extra-campine hallucination of a second head. "Quite suddenly everything seems strange, and people's voices become very faint. I feel that my head is dividing into two. The second head seems to flow off my normal head, and to take up a position a little behind and to the right of it. This 'astral' head appears in the form of a vague, misty shape with a black outline. I feel that it is the detached head that contains my mind." She feels horribly frightened during these episodes, which last a matter of seconds. There is a long history of bouts of giddiness accompanied by nausea, unassociated with headache or teichopsia; she has no ear disease. The family history for migraine and epilepsy is negative. The electroencephalogram showed a constitutional dysrhythmia without specific epileptic activity.

Commentary.—In this case, a mild obsessional neurosis was complicated by distortion of the body image, postural imbalance, and feelings of somatopsychic duality—possibly a migraine equivalent.

CASE 4

A single girl, aged 17, was referred to a psychiatric clinic with a medley of unusual symptoms in the setting of an anxiety state. They included transient feelings of unreality, of depersonalization, of growing small (half her real size), and of duality. The latter takes the form of an invisible alter ego: "I become aware of an invisible double stationed a yard away on my left. This shadowy double seems to contain my mind." She was frequently troubled by an illusory recession of objects in her visual field (teliopsia). It is of interest that her mother became aware of this symptom when the patient was *only five years old*, as the latter developed a habit of calling out, "Mummy, Mummy, come back to me", on perceiving her mother's form apparently receding into the distance. For many years she had suffered from throbbing headaches preceded by teichopsia, vertigo, and paræsthesiæ of various parts of her body. Her brother, mother, and maternal uncle have classical migraine, while there is also a tendency to infantile convulsions on her mother's side. The electroencephalogram showed a paroxysmal dysrhythmia, especially in the temporal lobes, but without specific epileptic activity.

Commentary.—In this case, the family history suggests that her body image disorders, metamorphopsia, and feelings of somatopsychic quality, etc., arise in a setting of migraine-epilepsy.

CASE 5

A housewife, aged 43, was referred to a psychiatric clinic with a mild anxiety neurosis complicated by disorders of the body image. She had complained of repeatedly feeling that her head was double its normal size and half its normal weight, or that her height had dwindled so that she felt only half as tall as usual. On several occasions she has noticed an illusory recession of her bedroom wall (telopsia), with the result that she seems to be standing in a long, narrow corridor instead of a cubicle room. This phenomenon only occurs when she is tired. For many years she has suffered from throbbing headaches associated with attacks of vertigo, palpitation, and teichopsia. Her mother and daughter have suffered from attacks of classical migraine. There is no family history of epilepsy.

Commentary.—In this case, body image disorders and metamorphopsia appear in a setting of classical migraine.

CASE 6

A married woman, aged 32, was admitted to a mental hospital with bizarre symptoms of two years' duration. She complained of a recurrent morbid urge to strangle herself, or anyone else who chanced to be at hand during the attacks. In addition, she was periodically conscious of illusory distortions of her body. On these occasions her head would feel three times its normal size, or her legs so shortened that her feet seemed to be attached just below her knees. Without warning, she would be overwhelmed by feelings of unreality of such intensity that she was compelled to look in a mirror to confirm her presence in the room. Sometimes her left arm and breast would suddenly lose their personal significance; they no longer seemed to belong to her. Not infrequently she noticed an illusory diminution in the size of objects or persons, which at times assumed Lilliputian proportions (micropsia). She was also troubled by recurrent sensations that she was about to die; these attacks of angor animi, which lasted about half an hour, were accompanied by an illusory slowing in the passage of time.

Fourteen years before these symptoms appeared, she began to suffer from throbbing, left-sided headaches accompanied by photophobia and paræsthesiæ of her left face and arm. These attacks ceased after two years and did not return until a year before her admission. However, they were now reinforced by attacks of vertigo and teichopsia. Detailed investigations (including angiography and air encephalography) had been performed at another hospital before her admission. No evidence of structural organic disease had been discovered. The electroencephalogram showed a generalized dysrhythmia with paroxysmal disturbance in both anterior temporal areas, but no specific epileptic discharge. The family history for migraine and epilepsy was negative.

Commentary.—In this case, the disorders of body image, metamorphopsia, angor animi, etc., appear against a background of migraine-epilepsy.

DISCUSSION

Complete or partial forms of the "Wonderland" syndrome appear in the course of a wide variety of disorders, such as migraine, epilepsy, cerebral lesion, intoxication with phantastica drugs, the deliria of fevers, hypnagogic states, and schizophrenia. Of these, migraine and epilepsy are for practical purposes the most important. It should be borne in mind that those symptoms which constitute the "Wonderland" syndrome may precede, accompany, *or entirely replace* the better known manifestations of migraine and epilepsy; they may also cause more distress to the patient, and be more resistant to treatment. The kinæsthetic illusion of bodily distortion experienced by patients with the syndrome are comparable to the visual illusions produced by the parabolic mirrors of a fun-fair. Such patients never lose sight of the illusory nature of their feelings, which are, however, sufficiently vivid to induce them, for example, to glance in a mirror or shop-window to check their height.

The studies of Bonnier[1] might suggest that the body image disorders of migraine and epilepsy are causally related to the vertigo so often present in these maladies. Bonnier described a small series of cases in which attacks of acute labyrinthine vertigo were accompanied by gross distortions of the body image and the development (in one case) of a bipartition phantasy. However, in migraine-epilepsy subjective distortions of the body image often occur *in the absence of a concomitant attack of vertigo*. The nature of the symptoms in the "Wonderland" syndrome strongly suggests that their site of origin is *in the parietal lobe*. Bollea[2] stimulated electrically the posterior parietal cortex and thereby produced disturbances of the body image. They included not only autoscopic hallucinations, but sensations of somatic elongation and illusory disappearance of all four limbs. It is significant that a lesion of the parietal lobe may produce the so-called "inter-parietal syndrome", consisting in vertiginous attacks, dis-

orders of the body image, and metamorphopsia.

In the course of maturation, each individual unconsciously constructs for himself a body image by the integration of sensory data constantly reaching the cerebral cortex from the various parts of the body. This composite body image embodies visual, kinæsthetic, tactile, auditory, and psychical components. The latter component imbues the purely neurological product with a *personal* significance. Clearly, the visual, kinæsthetic, and psychical components transcend the others in importance. The distortions of the body image (hyperschematia and hyposchematia) described in this paper are explicable in terms of the faulty integration of its *kinæsthetic moiety*. The sensations of somatopsychic duality doubtless result from schism and projection of both the kinæsthetic and psychical components. Some such mechanism would explain the invisible doubles (complete or partial) in cases 3 and 4; these shadow-doubles seemed to the subjects to contain their "minds," a state of affairs that strongly suggests a projection of the psychical component of the body image. Sensations of somatopsychic duality are closely allied to the specular (autoscopic) hallucination; in the latter case, the visual, kinæsthetic, and psychical components of the body image undergo simultaneous schism and projection.

The infrequency of reference to the syndrome in the literature is explained by the reluctance of patients to discuss symptoms so far removed from normal experience. In this connection, the remarks of one of Lippman's patients are very illuminating: "I have never told anyone else, as I have not wanted to be called or thought of as queer, and even a supposedly understanding doctor might lift his eyebrows at some of the happenings of a migraine victim, who learns to keep things strictly to herself, excluding both family and physician from her confidence." In the writer's experience, the anxiety of these patients can be appreciably lessened by an assurance that their symptoms are *not necessarily the prelude to insanity.*

The revelation that Lewis Carroll (Charles Lutwidge Dodgson) suffered from migraine arouses the suspicion that Alice trod the paths and byways of a Wonderland well known to her creator.

I am grateful to those of my colleagues who have permitted me to interview patients under their care.

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THE RECOVERY OF FUNCTIONAL ACTIVITY IN THE SHOULDER AND ARM FOLLOWING RADICAL MASTECTOMY

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ALTOGETHER apart from the possible relation of the procedure itself to the incidence of local recurrences or distant metastases—both, in most cases, complications of the mammary carcinoma for which the operation of radical mastectomy was devised—this surgical exercise has been criticized because of the frequency with which swelling of the arm and limitation of scapulohumeral movement occur in the postoperative period.

For those who believe that a radical operation is still the procedure of choice in cases of breast cancer, it becomes necessary to attempt the prevention of these complications and also the reduction of their severity in those patients in whom certain degrees of dysfunction persist, despite careful operative and postoperative management.

CAUSES OF LYMPHŒDEMA

Lymphœdema in the arm may be the end result of one of the following factors, acting singly or in conjunction with the other.

1. In the first place, purely anatomical causes may be responsible after otherwise uncomplicated operations. With the complete dissection and removal of the lymphatic channels traversing the axillary nodal filters, tissue fluids can find egress from the limb only by accessory or collateral channels circumventing the axillary apex by traversing the deltoid region to empty

into more proximal collecting vessels via the supraclavicular triangle. If these pathways are inadequate to the needs of the limb, obstruction to the outflow of lymph occurs with distal swelling.

It is in these instances that œdema occurs in the immediate postoperative period, and often assumes major proportions even before functional activity is allowed. Fortunately, however, it seems probable that collateral channels can enlarge, or new ones develop, and eventually become capable of relieving the limb of this excess accumulation, with the happy result that subsequently the œdema may diminish remarkably and often almost completely disappear, even with use of the arm.

In order to take advantage of this almost unpredictable possibility, it is important to control the swelling as much as possible during the early phase in order to prevent permanent limitation of joint mobility, particularly at the shoulder. This restriction in scapulohumeral movement depends upon the serofibrinous adhesion of œdematous intra-articular tissues and periarticular structures, the œdema and serofibrinous exudation being aggravated also by the vascular stasis which accompanies muscular inactivity.[1]

This control is effected in two ways: (1) by elevation of the arm in order to prevent gravitational collection in distal parts of the limb, and (2) by elastic support when the limb is dependent during ambulatory activity. It is particularly important that the patient be protected from lying on the affected arm when asleep; this prevention is best accomplished by asking the patient to wear a snug-fitting glove with holes in the finger tips through which cords can be passed and attached to an overhead support overnight.[2] The patient soon gets accustomed to the restriction of her normal activity during sleep, and this restriction may prove surprisingly effective in making certain that maximum decrease in the swelling is obtained during the night's rest.

In order to prevent its prompt reappearance, an elastic bandage is applied from hand to axilla before allowing the arm to resume a dependent position, much as similar support is advised in the management of a postphlebitic lower limb. As an alternative, it is possible to fit an elastic stocking extending from the metacarpo-phalangeal joints to the upper humeral area, which can be more easily applied by the patient and is quite as effective when ambulatory activity is resumed.

The degree of functional use permitted depends on the swelling induced by the activity. If, at one end of the scale, the elastic support is adequate, the patient may use the limb within these limits. If inefficient or inadequate, then frequent periods of rest with the arm in the elevated position, either on pillows or suspended as described above, are essential and cannot be over-emphasized. Massage from the distal to the proximal portions of the limb may be of some value in speeding the disappearance of the accumulated fluid, but probably this manual dispersal has only temporary value and offers little in the way of permanent benefit.

2. In the second place, the obstruction is of a pathological rather than anatomical nature, and results from the scarring that develops when infection is present or when a collection of serosanguineous fluid remains to be organized in the axillary region. In either instance, but particularly with any appreciable degree of infection, the associated inflammatory reaction in the adjacent tissues subsequently produces perilymphatic scarring and consequent blockage of the collateral channels, which may be indispensable in the absence of a functioning axillary filter system. In contradistinction to the anatomical defect described above, these pathological changes are not immediate in appearance, and the lymphatic occlusion is demonstrable only later in convalescence, usually several weeks after operation, when full use of the arm has been regained. This resumption of arm activity throws an additional load on the narrowing channels, the efficiency of which is now in a critical state, and may precipitate the appearance of the swelling which occasionally develops very quickly once it has made its appearance.

Theoretically, preoperative radiation therapy, producing as it does diffuse perilymphatic fibrosis, should aggravate this tendency, but in practice a comparison of series of cases treated with and without irradiation shows that the incidence is not appreciably altered.

In minimizing scar production, infection must be controlled at all costs, as it is the most significant of the responsible factors. Careful technique with sharp dissection and gentle handling is important, not only in the prevention of unnecessary dissemination of disease, but also

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in reducing the amount of damaged or traumatized tissue in which organisms may flourish. Routine antibiotic coverage is always indicated, particularly when dealing with irradiated tissues.

It is undoubtedly true that recognition of these principles has appreciably diminished the danger of such infection, but the problem of fluid collection, whether it be serous or sanguineous, remains a constant threat to the full recovery of the functional use of the arm. Particularly in the case where the surgeon chooses to fashion thin skin flaps, is it necessary to ensure the immediate and firm adherence of the skin to the chest wall, for in these instances the viability of the margins of the flaps may depend on the nourishment obtained from the underlying chest wall. If elevation of the skin occurs and is not corrected, sloughing may result; this leads inevitably to secondary granulations with the possibility of chronic infection and the consequences of increased scarring, limitation of function, and probably increase in swelling of the involved arm.

CONTROL OF LYMPHŒDEMA

To prevent these fluid accumulations, drainage and pressure have been fundamentals of the operative procedure since the origination of radical mastectomy. Because these two precautions are much too frequently inadequate, however, many refinements have been added from time to time to the surgical technique in order to increase their efficiency. At the present time it is felt that constant suction applied by a mechanical pump[3] provides the best means of complete evacuation of any fluid that may collect, and this method is now used routinely. Usually the drain is inserted in the customary place in the posterior axillary region and the suction continued with or without a pressure dressing for a period varying between 48 and 72 hours. At the end of this time, most skin flaps that have been correctly fashioned will be adherent and the drain may be removed. However, the policy of prescribing thereafter immediate active exercise of the shoulder, in order to ensure rapid recovery of movement, is not without danger, for if the axillary flaps are at all tight and not yet firmly adherent, abduction of the arm exerts an influence much like that of a bellows, tending to separate the skin from the dome of the axilla, particularly when a thin layer of fluid is still present. This produces a dead space which fills with fluid and air and initiates the chain of events described above leading to eventual granulation and final scarring. Therefore, it is now considered wiser, in direct contradiction to previous custom, to defer any regimen of active exercises until approximately the fifth day, when this separation is unlikely to occur. Not only is this a safer procedure on this score but also the patient has not been subjected to any acutely painful exercises in the early postoperative period, has regained her confidence, and is now emotionally more responsive to the emphasis placed upon the importance of early recovery of a full range of movement.

Nonetheless, muscular inactivity itself predisposes to vascular stasis and œdema with serofibrinous exudation, thus promoting adhesions within the joint and in the periarticular tissues that lead also to stiffness and loss of function. In addition, even the uncomplicated healing of areas of such widespread dissection is associated with considerable scarring between the skin and the underlying structures which, unless it is prevented by constant stretching, will contract and limit the eventual range of movement possible. Therefore, insistent emphasis, once the flaps are adherent, upon a complete regimen of shoulder joint exercises remains the fundamental principle in ensuring recovery of function. The variation in the speed with which recovery is obtained is phenomenal, but most patients who are earnest enough in following the prescribed regimen will have a satisfactory range of movement within three to four weeks, some in as short a period as 10 days.

PROGRAMME OF EXERCISES

Following control of œdema with its associated serofibrinous exudation and adhesion formation; and control also of infection and the collection of sero-sanguineous fluid which lead to associated inflammatory scarring; and when the wound is healing without significant skin loss along the margin of the flap, it then becomes imperative to stress active exercises. The following guide is presented to outline those found most useful in this particular group of patients.

1. While the arm is kept at the side, usually with sling support for the first four to five days, movements of the elbow, wrist and fingers

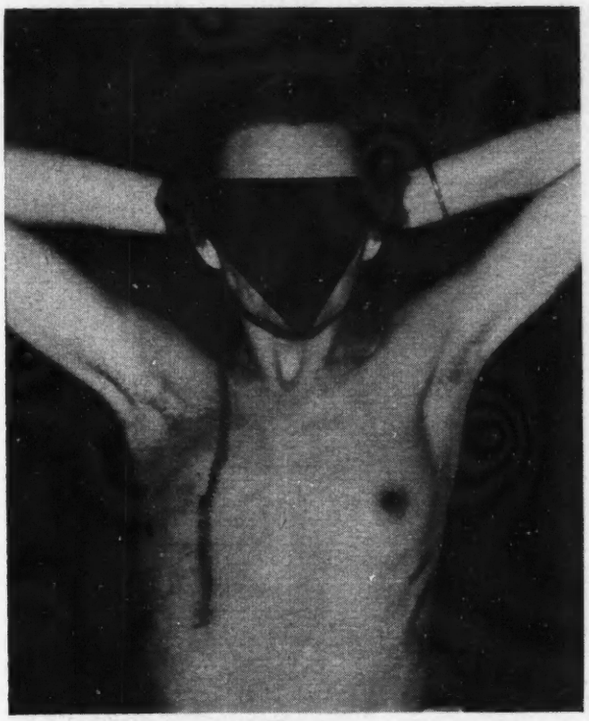

Fig. 1

Fig. 2

through a full range at all joints are carefully supervised.

2. In the first shoulder exercise the patient, in the supine position, places the affected hand behind her neck and locks the fingers with those of the opposite hand. It is often necessary to flex the neck fully to accomplish this manœuvre. The head is then extended fully and the opposite shoulder moved into a position of abduction with the elbow against the bed. While maintaining the fingers in a locked position, the patient attempts to duplicate this movement in the involved shoulder (Fig. 1).

3. As elevation to touch the head becomes possible, she practises combing and brushing her hair, feeding herself with the affected hand, and, in addition, practises the specific exercise of reaching over the fully extended head to touch the opposite ear (Fig. 2).

4. While supine in bed with her head close to the upright bars of the hospital bed, she grasps adjacent bars with her hands and then slides down in the bed, forcing the arm into further elevation as she maintains the grip on the bar. This exercise might best be accomplished in a moderate Fowler's position, without the knee support being raised (Fig. 3).

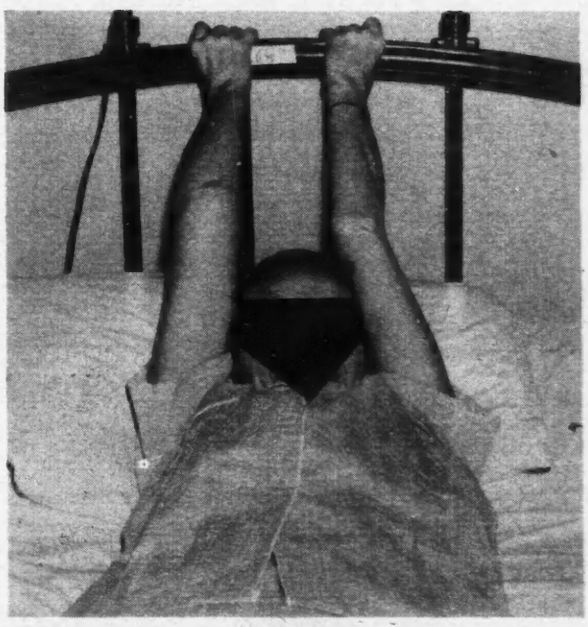

Fig. 3

5. Pulley exercises to complete elevation above shoulder level in the erect position are now begun. As illustrated, a pulley might be attached to a coat hanger on the back of any convenient closet door, and with the patient seated with her back to the door, the arm pulled into elevation by the opposite hand (Fig. 5). As an alternative procedure at home when no suitable hanger or pulley is available, the shower curtain rod may

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Fig. 4

be used, the patient sitting astride the bathtub, in the manner demonstrated in Fig. 6.

6. Finally, wall climbing, usually best performed with the patient facing the wall and

Fig. 5

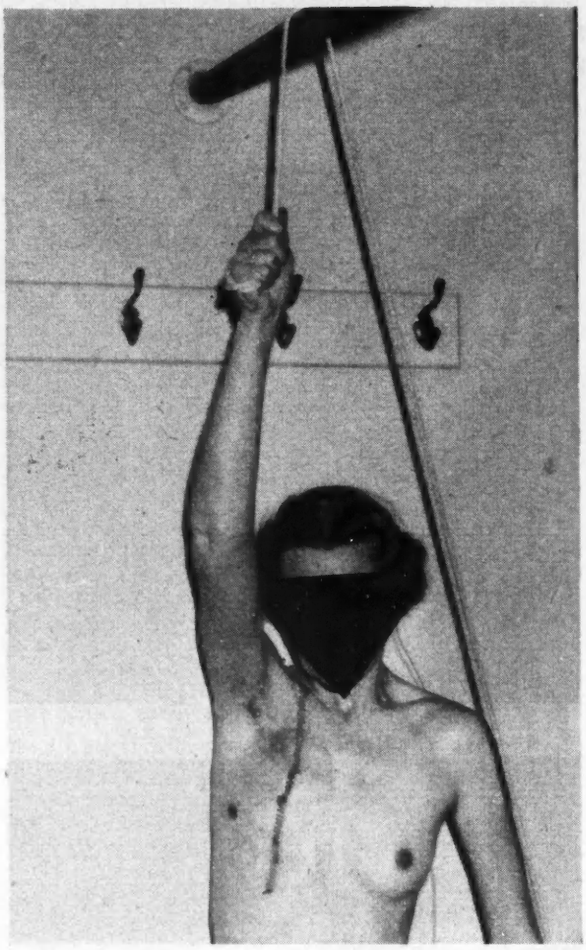

Fig. 6

standing as close to it as possible, allows active elevation at the affected shoulder and provides the stimulus of a normal range of movement at the opposite joint to which the results may be compared (Figs. 7a and 7b).

7. In patients whose progress through the early stages of this programme is slow, pendulum exercises, stressing abduction and adduction movements, may allow an increase in the range of abduction sufficient to permit resumption of the exercises described above (Fig. 4).

8. Internal rotation is usually recovered more easily, but it is probably wise to encourage practice in placing the affected hand between the shoulder blades in order to make certain that there will be minimal impairment of this type of movement.

The exercise programme outlined above should, in hospital, be supervised by the nursing staff or the physiotherapy department, but it is simply constructed, easily understood, and may be carried out efficiently at home by a patient on whom its importance has been sufficiently

Fig. 7a

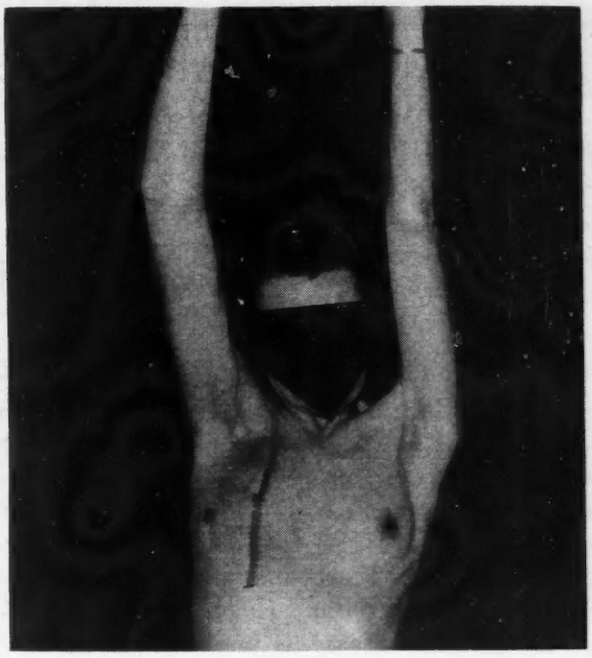

Fig. 7b

impressed. She is instructed to complete the entire series once every hour of the waking day, taking five to ten minutes on each occasion, and specifically concentrating on an increase in the range of those movements which are still limited. Where possible, as in wall climbing, accurate records should be kept so she may be certain that an increase is being obtained at every attempt.

SUMMARY

1. Impairment of scapulo-humeral movement and arm function has long been a serious complication of radical mastectomy. Primarily, this dysfunction arises from scar restriction at the shoulder, and obstructive lymphœdema in the arm.

2. Œdema depends upon anatomical vagaries and the pathological scarring of inflammatory origin developing in response to infection or sero-sanguineous fluid accumulations.

3. The restriction of shoulder motion is due to the same scarring and aggravated by the stasis œdema in the shoulder joint which results from muscular inactivity.

4. Methods of controlling the œdema and eventual scarring are outlined.

5. A regimen of prescribed exercises designed to obtain rapid return of function in the shoulder joint is demonstrated photographically with brief written instructions. One should note that exercises are not now advised until approximately the fifth postoperative day, when the skin flaps should be firmly adherent to the chest wall and axillary dome. The illustrations used to depict these exercises represent the range of movement obtained on the eighth postoperative day.

6. Active preventive therapy of this kind will minimize the frequency and severity of these complications.

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RÉSUMÉ

1. La diminution du mouvement scapulo-huméral et de la fonction du bras ont été depuis longtemps des complications sérieuses de la mastectomie radicale. Cette incapacité est surtout le résultat de la rétraction cicatricielle des tissus de l'aisselle, et de l'œdème, causé par cet obstacle au drainage lymphatique du bras.

2. L'œdème dépend de caprices anatomiques et de cicatrisation pathologique d'origine inflammatoire qu'il suit l'infection ou des accumulations de liquide séro-sanguinolent.

3. La diminution du mouvement de l'épaule est due aux mêmes cicatrices, et l'œdème de cette articulation causé par l'inactivité des muscles peut l'aggraver.

4. L'auteur décrit des méthodes ayant pour but de contrôler cet œdème et les cicatrices qui s'ensuivent.

5. A l'aide de photographies accompagnées de courtes indications, l'auteur présente une série d'exercises destinés à hâter le rétablissement du mouvement dans l'articulation de l'épaule. On remarquera que ces exercices ne sont recommandés qu'après le 5e jour post-opératoire, lorsque les lambeaux sont fermement adhérents à la paroi thoracique et à l'aisselle. Les clichés représentant ces exercices montrent l'amplitude des mouvements obtenue le 8e jour après l'opération.

6. La thérapie préventive de ce genre diminuera la fréquence et la gravité de ces complications. M.R.D.

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RELATIONSHIP OF EPIDEMIC KERATOCONJUNCTIVITIS TO THE ADENOIDAL-PHARYNGEAL-CONJUNCTIVAL (APC) VIRUS SYNDROME*

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INDUSTRY IN CANADA has enjoyed relative freedom from the eye disease, epidemic keratoconjunctivitis (EKC), which spread throughout the United States during the second world war. It first appeared on the North American continent in 1941 in the ship-building areas along the West Coast, and was referred to as "shipyard conjunctivitis". Hogan and Crawford[1] (1942) gave the disease its present name of epidemic keratoconjunctivitis.

In 1951 an epidemic of EKC occurred in the Ford Motor Plant in Windsor, Ontario.[2] Of 549 patients who reported twice daily to the hospital dispensary for treatment during the course of their disease, only 89 developed corneal subepithelial opacities which could be seen by focal illumination with the binocular loupe. During the fall and winter of 1951, a number of cases of viral conjunctivitis were seen in the Toronto area, but of these only one developed subepithelial opacities typical of EKC. During 1952, 1953, and the first 10 months of 1954, no further cases of the disease were seen by us. In November 1954, however, a patient referred to our laboratory with viral conjunctivitis subsequently developed corneal sub-epithelial opacities. Eight days after examining this patient, the referring oculist (McCul.) also developed the typical manifestations of EKC. During the first six months of 1955, more than 20 patients have been referred to us with viral-like conjunctivitis, about half of whom developed corneal opacities. Some of these opacities were typically round, opaque, and subepithelial, and others were diffuse, nebulous, and transient. There was little to differentiate the clinical course of these cases from each other, since the follicular hypertrophy in the lower conjunctival fornix associated with pseudo-membranes, marked tearing, and preauricular adenopathy was present in all cases. The second eye usually became involved about the fifth day, but a milder course was invariably seen in this eye, the corneal opacities being fewer in number and less opaque than in the first eye.

VIRUS ISOLATIONS

Sanders and Alexander (1942)[3] were the first to report the isolation of a virus from cases of EKC during the epidemics occurring along the eastern seaboard at that time. They used mouse-brain passage and tissue cultures of embryonic mouse-brain to fix the virus in mice. Subsequently a number of strains were isolated and stored by Braley and Alexander (personal communication). One of these strains, said to be identical with that of the original, was studied by Ruchman[4] and Cheever[5] (1951), who found that it was neutralized by St. Louis encephalitis hyperimmune serum. This same strain was sent to us by Dr. Braley, and was tested against 61 sera from the Windsor epidemic, but no neutralization of the virus by any of these sera could be demonstrated.[6] Cockburn *et al.*[7] (1953) also found no neutralizing antibodies against this strain of EKC virus in sera from patients in two small epidemics in the midwest. Braley (personal communication) now believes that this strain of EKC virus has been lost in storage.

Since the original isolations in 1942, workers in this field have met with little success with these methods. Sézer (1953) reported[8] from Turkey the adaptation of virus from patients with EKC to eggs, by grafting a human cornea on to the chorio-allantoic membrane for the first passage from eye washings. This virus has not been available on this continent for neutralization studies against convalescent sera from patients with EKC.

During the Windsor, Ontario, epidemic in 1951, eye washings were taken from patients during the acute phase of their disease, and stored at –60° C. Later, attempts were made to isolate the virus, using tissue cultures of embryonic mouse-brain and direct mouse-brain passage.[6] Half the mice used in these latter procedures were cortisone-treated, and a number of strains of virus were isolated, most of which originated from the cortisone-treated mice. None of these strains of virus were neutralized by convalescent sera from the patients, and it was subsequently shown that they were closely related to the Theiler TO (Yale) strain of mouse en-

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cephalomyelitis virus which had been latent in the mice. It was concluded from these studies that newer methods of isolation must be adopted, in which latent animal viruses would be avoided.

Meanwhile in Bethesda, Maryland, at the National Institutes of Health, Rowe and co-workers[9] had demonstrated the presence of latent viruses in tissue culture of adenoids removed during routine operations on children. These viruses caused a cytopathogenic effect (CPE) in a number of tissue culture cells, one of the most sensitive being the strain HeLa, an epithelial cell originally derived from a carcinoma of the cervix. Five immunologically distinct types (1, 2, 4, 5 and 6) have been recovered from tonsil and adenoid tissue. Type 4 has been associated with acute febrile respiratory disease in military recruits. Types 2, 3, 4 and 5, when inoculated into the eyes of volunteers, were found to produce a follicular type of conjunctivitis without keratitis.[10] Type 3 was recovered from eye and throat washings in epidemics of pharyngitis and conjunctivitis associated with fever and muscle pains which occurred in and about Washington, D.C., in 1954.[11] This APC3 disease was found to be transmitted by direct contact, and in swimming pools. None of the eyes examined at that time showed any evidence of corneal opacities (Huebner, personal communication).

This epidemic in Washington, D.C., closely resembled an epidemic previously described by Cockburn[12] in Greeley, Colorado (1951), in which transmission had occurred in swimming pools during the summer months. In some of the Greeley cases, the corneæ, on slit-lamp examination three weeks after onset, were found to have small whitish plaques one mm. or less in size.

In 1955 Jawetz and co-workers[13] in San Francisco isolated a strain of virus from a sailor who had developed EKC while en route from the Orient, and in whom typical major corneal opacities were present in both eyes. This virus ("Trim") was subsequently studied by Rowe and Huebner in Bethesda, Maryland, and found to be an APC agent which did not fit any of the known six types previously described. This virus was shown by Jawetz to be neutralized by convalescent sera from patients who had recovered from typical EKC in Canada, Philadelphia, California and Chicago (Table I).

TABLE I (JAWETZ)[13].

ANTIBODIES TO "TRIM" VIRUS AMONG PATIENTS WITH KERATOCONJUNCTIVITIS

Location	*Year*	*No. patients*	*Neutralizing antibodies*	*Definite evidence of "Trim" infection Pos. total*
Canada	1951	4	4	
Canada	1954–55	1	1	
California	1953–55	5	5	25/25
Chicago	1954	9	9	
Philadelphia	1953	6	6	

ISOLATION OF VIRUS FROM TORONTO CASES

In November and December 1954, when the first cases of the current series of follicular conjunctivitis and keratitis were seen by us, neither HeLa cells nor trypsinized monkey-kidney epithelium were in use in our laboratory. Isolation attempts from washings from these early cases were made by the original technique of Sanders and Alexander,[3] using direct mouse-brain passage and embryonic mouse-brain in tissue cultures.

In a subsequent attempt at isolation of virus from a patient with follicular keratoconjunctivitis, trypsinized monkey-kidney in roller tubes was used as the tissue, and a cytopathogenic agent was isolated (Fowle, Cockeram and Ormsby).[14] The CPE was characterized by granulation and rounding of cells, followed by a clumping together of groups of rounded cells. Clumps of cells later became detached from the surface of the roller tube.

This virus was readily passed in tissue cultures of HeLa cells, but also produced a CPE in human-kidney and human-corneal epithelial cells. It was possible to adapt the virus to the chorio-allantoic membrane of the hen's egg by the method of Sézer, whereby a human cornea was first grafted to the membrane. It was not possible to adapt the virus to mice by direct brain-passage or by passage of the virus in tissue cultures of embryonic mouse-brain.

An inoculation into the lower conjunctival sac of a human volunteer (Orms.) was carried out by using tissue culture fluid from the fourth passage in monkey-kidney epithelium. Five days and 12 hours later there appeared in the inoculated eye a typical follicular conjunctivitis associated with marked tearing and preauricular adenopathy. Five days and 12 hours after the onset of infection in the first eye, the second eye became involved in a similar but less severe process. A number of minor corneal opacities were seen on slit-lamp examination of both eyes.

In the Washington, D.C., epidemics of adenoidal - pharyngeal - conjunctival disease caused by APC3 virus, no corneal changes were seen. The association of type 3 APC virus with corneal lesions in 1954-55 Toronto cases is consistent, however, with the Greeley cases of 1951 reported by Cockburn,[7] who described minor corneal opacities in 25% of patients examined by slit-lamp. Recent serological studies on convalescent sera from this Greeley epidemic by Huebner (personal communication) reveal that this disease was caused by the APC3 virus.

TABLE II.

VIRUS ISOLATION FROM PATIENTS WITH KERATOCONJUNCTIVITIS (1955)

Patient	*Typical EKC* *Major opacities*	*Minor opacities*	*CPE in tissue culture*	*Virus identified (Huebner)*	*APC group C-F antibodies (Huebner)*	*Neutralizing antibodies to "Trim" virus (Jawetz)*
Co	Yes					
McCul	Yes				Yes	Yes
Avot		Yes	Yes	APC3	Yes	No
Orms		Yes	Yes	APC3	Yes	No
Whel	Yes		Yes	APC3	Yes	No
Bro	Yes		Yes	APC3		
Arms	Yes		No			
Smi	Yes		Yes			
Arq	Yes		Yes			
Ry		Yes	Yes			

Subsequently, a number of APC viruses were isolated from patients with keratoconjunctivitis using tissue cultures of trypsinized monkey-kidney or HeLa cells. In Table II the patients with corneal opacities are listed, and it will be seen that virus was obtained from eye-washings from a number of these. Dr. Huebner tested three of our strains of virus and reported that they fitted the APC3 type. Four convalescent sera were shown to have APC group complement-fixing antibodies. Of four convalescent sera tested by Dr. Jawetz for neutralization against the "Trim" virus, only one of the 1955 series had a rising titre of antibodies (McCul.).

DISCUSSION

In Ontario at this time there are apparently two viruses belonging to the APC group, immunologically distinct, which cause keratoconjunctivitis. This is borne out by the neutralization of the "Trim" virus by convalescent sera from four of the patients in the Windsor epidemic (Table I) and by one patient in the 1954-55 series with keratoconjunctivitis in Toronto (Table II).

Furthermore, in our series of patients with keratoconjunctivitis, none had any fever or muscle pain, and in only one instance was pharyngitis present. Moreover, evidence of transmission to direct contacts occurred in only one of our patients (McCul.), thus differing from the Washington cases in which transmission occurred readily in contacts.

Further studies are indicated to determine the incidence of APC infection in Canada, and the relationship of eye virus infection to such entities as atypical pneumonia, pharyngitis and tracheitis. In recent studies, Dempster (personal communication) has demonstrated the presence of APC group complement-fixing antibodies in convalescent sera of Canadian army personnel with atypical pneumonia.

SUMMARY AND CONCLUSIONS

1. Epidemic keratoconjunctivitis, reported previously in Ontario in 1951, was again seen in the Toronto area in the winter of 1954-55.

2. From seven of these patients with keratoconjunctivitis, strains of virus have been isolated in tissue cultures of HeLa cells or trypsinized

monkey-kidney epithelium. The disease was reproduced in a human volunteer using fourth passage of virus in tissue culture.

3. Some of these strains of virus have been shown to belong immunologically to the type 3 adenoidal-pharyngeal-conjunctival (APC) group of viruses.

4. Convalescent sera from four patients with EKC taken during the 1951 Windsor epidemic, and from one of the 1954 patients, had antibodies to the "Trim" virus of Jawetz. This virus, isolated in California in 1955 from a patient from the Orient with EKC, is also an APC agent, but differs immunologically from the six types previously described by Huebner and coworkers.

These studies comprise part of the survey of ocular diseases of virus etiology, conducted under the National Health Grant 605-9-63.

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RÉSUMÉ

La kératoconjonctivite épidémique, déjà signalée en Ontario en 1951, a reparu dans la région de Toronto pendant l'hiver de 1954-55. Des sources de virus furent obtenues chez sept de ces malades, et conservées en cultures de tissus de cellules HéLa ou d'épithélium de reins de singe traités par la trypsine. Après un quatrième passage en cultures de tissu, l'affection peut être reproduite chez un volontaire. Quelques-unes de ces souches furent identifiées comme appartenant au type 3 des virus du groupe adénoïdo-conjonctivo-pharyngé (ACP). Le sérum de quatre malades convalescents d'une attaque de kératoconjonctivite épidémique, prélevé pendant l'épidémie de 1951 à Windsor, et celui d'un des malades de 1954, contenaient des anticorps au virus de "Trim" de Jawetz. Ce virus obtenu en Californie en 1955 d'un malade souffrant de K.C.E. et venant de l'Orient, fait aussi partie du groupe A.C.P., mais diffère du point de vue immunologique des six types déjà décrits par Huebner et ses collaborateurs.

M.R.D.

THE PROBLEM OF ACOUSTIC TRAUMA*

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MODERN INDUSTRIAL METHODS usually produce many variations in the quality and quantity of noise. For the most part this noise is quite harmless, but in many cases it becomes a menace to the individual workman through the physical and mental effects that it may create. The discussion in this paper is largely a consideration of the effect of loud noise on the ear.

It is proposed to consider several aspects of this problem which have appeared in surveys made through the Acoustic Laboratory of the University of Toronto. These will include the effect of noise on air personnel, nerve deafness in veteran patients, noise surveys in an industrial organization, and a short description of methods of making a noise survey in industry.

The injurious effects of noise are: (a) actual temporary and/or permanent hearing loss due to acoustic trauma to the organ of Corti; (b) the increased potentials of inefficiency and accident probability that may be due to hearing loss. The trauma produced may be of a temporary, progressive or permanent nature. The symptoms produced may differ greatly, depending on the type of noise, the severity or intensity, the duration of exposure and the susceptibility of the individual ear. The commonest symptoms are reduction in hearing acuity in the upper frequencies and tinnitus. The severity of the tinnitus is not related to the amount of hearing loss.

Because the frequencies involved in early traumatic lesions are well above the normal conversation range, many people have audiometric evidence of these changes before the symptoms of deafness appear. The reason why the injury first occurs in the upper tone levels has long been a matter of speculation, and explanations

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have been based on various anatomical, physiological and acoustical factors. None of these explanations is adequate. It has been found, and confirmed by our surveys, that the duration of exposure to the traumatic noise is an important factor in the development and permanency of the trauma produced. The chances of recovery are much better after a single or short exposure than after long and repeated exposures. A rest period following exposure may result in complete recovery in the noisy occupations. High tone or nerve deafness, once produced, does not necessarily mean the development of a progressive lesion if the initiating factor is removed.

It has been known for many years that noisy occupations cause high tone deafness, known as "boilermaker's disease". The advent of the electric audiometer made it possible to record hearing loss graphically, and readily detect a slight lowering of the higher tone range when it first appears. Frequent testing with this apparatus of personnel before and after exposure and after rest periods is extremely useful. In order to analyze the ambient noise to which the subject is exposed, expert opinion is required, with suitable apparatus that must be carefully adjusted and calibrated. It is not necessary to give details of this, except to state that the two most important pieces of equipment are a sound level meter and a sound analyzer. The former measures the level of noise produced in terms of decibels above the normal ear threshold. This instrument in itself is unable to distinguish between the amplitude of sound and the variations of frequency and pitch concerned. For these latter acoustical characteristics of an ambient noise, a sound analyzer is used to analyze the noise into a spectrum giving broad octave distinctions of the frequencies involved. With these instruments at our disposal it is possible to go into a noisy factory and determine accurately, by analysis, the source of the injury produced to the workman and also to analyze the individual noises in the composition of the general ambient noise and estimate the likelihood of these being dangerous to any ear.

The first work on acoustic trauma done in our university was sponsored by the Royal Canadian Air Force in conjunction with the Departments of Otolaryngology and Physics under Dr. J. A. Sullivan and Mr. W. E. Hodges. A splendid laboratory was established and left high and dry by our friends of the services in peace time. We have endeavoured to keep this going since then with very little financial encouragement and many difficulties. Industry and compensation boards are not too favourably inclined to open new considerations of industrial hazards which cost money to compensate the injured. In spite of these obstacles we have managed to continue on what we believe to be a useful pathway of investigation, though on a much smaller scale than we would desire.

TESTING OF AIR-CREW PERSONNEL

The time necessary to recover normal hearing was estimated in a group of younger men exposed to aircraft noise in flight. Audiograms were done on flying personnel after flights of one, two and four hours. In this age group a definite pattern is found, and it would appear that the time period required for recovery varies directly as the square of the exposure time. Thus it seems that four hours would be the maximum exposure time to severe noise if one allows the remainder of the day, or 16 hours, for recovery. This can be replaced by a two-hour period with four hours' rest.

INDUSTRIAL SURVEY

A survey was made of a large Toronto industrial plant. The workmen were all given a careful ear, nose and throat examination and an otological history was obtained. They were tested audiometrically after eight hours in noisy surroundings and again after 75 hours of rest over a weekend. The average noise level in this plant was found by measurement to be 100 decibels. The average age of the personnel involved was 33.6 years and the average exposure to this noisy type of work was for 11.4 years. All persons tested showed a loss of at least 20 decibels in the higher frequencies after eight hours' exposure. Ninety per cent showed a low tone loss also at this time. After the 75 hours of rest, all showed recovery of the low tone loss below 2,000 cycles per second. Twenty per cent still showed high tone loss after the rest period. The symptoms noticed by the workmen themselves were interesting. Eighty per cent noticed no change in hearing while at work or after work. Fifty per cent noted tinnitus when leaving work, but the large majority stated this cleared after about two hours. Twenty per cent complained of temporary or permanent deafness.

SURVEY OF ACOUSTIC TRAUMA DUE TO WAR NOISES

An attempt was made to determine whether an acoustic trauma, which caused a high tone or nerve loss, was likely to produce a progressive nerve deafness. Fifteen cases were followed up in the Department of Veterans' Affairs hospital under Dr. C. A. Rae and Dr. Kenneth McAskile. These cases differed from those exposed to continuous noise in that they were largely due to blast injuries or other types of noise in which the traumatizing factor had been discontinued. The cases were picked at random, the requisites being: (a) no history of hearing loss before exposure to trauma; (b) no present occupational exposure to a noise factor. The patients were all checked periodically over a period of five to six years.

The results of this survey showed that tinnitus is a common symptom in this type of trauma, as 14 out of 15 complained of it. All noticed some hearing impairment and all showed at least a 60 decibel loss at the 5,000 frequency. Two patients felt their hearing loss was increasing but neither of these showed any changes in a period of five years. Only one patient had an increase in hearing loss, but he was not aware of this. One also showed marked subjective and audiometric improvement in his hearing over a six-year period.

This, of course, is a small series and covers only a short period of time, but it does seem to indicate that a progressive degenerative lesion is not initiated by this type of acoustic trauma when the cause is removed.

TESTING OF NOISE LEVEL IN INDUSTRY

At the present time testing and proving the injurious level of noise in industry is quite a difficult problem. Factory owners and compensation boards are loath to admit this industrial hazard, just as they were until recently in the problem of silicosis. Departments of industrial hygiene have only begun to realize that preventive measures may be of aid and are investigating their possibilities. A paper on this subject was given to the Industrial Section of the Toronto Academy of Medicine by Dr. J. A. Sullivan and this resulted in changes in the power plants of the Ontario Hydro in Niagara Falls. An address was also given to the Quebec and Ontario Industrial Divisions, sponsored by the Ontario and Quebec Compensation Boards. Labour leaders in Canada and the United States are conscious of the hazard and its effects. Ear specialists and industrial physicians will be consulted on this question and must be familiar with it. A summarized case report is presented below to show the detective work necessary to obtain compensation for deafness in one case.

CASE REPORT

A.C.L., age 43; employed as stone cutter and finisher.

History. This man applied for compensation with a history of first noticing deafness four years previously. His employment was largely that of cutting granite with a pneumatic hammer, using compressed air. He had been at this work for 25 years. He had always maintained that he was much more deaf in his left ear than his right ear and this was borne out in frequent examinations of his hearing. One of the factors in the history was that he was "left-handed" and so used the pneumatic machines in this hand, bringing the noisy exhaust nearer to his left ear. This was found in all the variety of machines he used—a pneumatic hammer, stone finisher and rotary stone saw.

Investigation. This man's ear examination was negative except for his hearing loss. He was carefully checked at the Department of Physics laboratory and found to have a marked bilateral nerve deafness, showing 10 to 20 decibels more loss in his left than in his right ear. The noise level in the plant was tested by Mr. Hodges by means of a sound level meter and also a noise analysis meter.

Findings. It is not proposed to publish the graphic picture of these findings in this report, but it is sufficient to say they can be so expressed. The conclusions only will be given.

Not only was the over-all ambient noise level in the shop, with all machines in operation, measured but also the adjacent noise of all the various tools this man was accustomed to use. With the 1¼-inch pneumatic hammer, the area of exhaust is close to his ear, and especially the left ear. The region adjacent to the left ear was tested with this machine and also with a rotary stone saw and a large surfacing machine which he used at times. It was found that there was considerable variation in the noise level recorded with these various machines and also in the over-all noise present in the shop itself. The ambient noise within the shop gave a reading of about 97 decibels. This level agrees very closely with the level found by investigators from the Department of Industrial Hygiene. We did find on testing the various machines, however, that this increased up to as high as 105 decibels. The highest finding was on the exhaust of the pneumatic hammer with the reading taken close to the ear on the side nearest the exhaust. The large surfacing machine, also in this region, gave

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a noise level of 105 decibels. There was thus some variance between this figure of ambient noise of 97 decibels and the worst noise, which was 105 decibels. This was partly due to the type of noise, but more so to the proximity of the exhaust to his left ear. As has been pointed out before, this man is left-handed and holds a drill in this position; it seems that he must, on many occasions over a long period, have been exposed to a noise level of 105 decibels, which could definitely have had an injurious effect on his hearing.

It was felt that we could not deny the fact that even the ambient noise present in this monument works was higher than it should be to give safety to the men employed there. With the added hazard of a top level of 105 decibels, this man must have had some damage to his hearing which could be associated with his employment. The frequency spectrum of the noise is found to agree with, and occur at the same level as, his hearing loss. This was an added factor in our belief that this man's injury was due to his exposure to noise in this plant.

SUMMARY

Trauma due to noise is a real factor in hearing loss and should be the concern of all otologists and industrial physicians. The careful testing of noise levels is a technical procedure requiring accurate precision instruments and must be done by expert personnel but the general principles should be known to all of us. We do know that high tone deafness results from acoustic trauma and that this can be helped by:

(a) Not employing anyone in a noisy position if he has nerve deafness. This entails the testing of all new personnel by audiometry on employment.

(b) Reducing the hazards of noise by sound-proofing factories with the use of sound-absorbing materials and quiet machinery.

(c) Insistence on the wearing of simple ear wardens by the workmen.

(d) Suitable rest periods for recovery from depressed hearing in extreme levels of noise in industry.

In traumatic damage to hearing by noise it seems reasonable to conclude that, if the noise is discontinued as in the case of war veterans, the high tone loss is not of the progressive type found in senile nerve deafness.

CONCLUSIONS

1. Exposure to loud noise produces deafness due primarily to fatigue. Normal acuity may be regained with the recovery time required, found to be approximately the square of the exposure time.

2. Repeated exposure over a long period to loud noises produces deafness due to a degeneration in the organ of Corti, which is permanent. This is found particularly in the region of 4,000 cycles per second and up.

3. Sudden or blast injury to hearing is also a high tone deafness unless very severe, when all tones may be affected. It is not a progressive degeneration.

4. Recognition of the industrial hazard of noise involves the testing of noise levels in working conditions, preventive measures to control the amount of noise produced, and insistence on the use of ear wardens in controlling the volume of noise reaching the internal ear.

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BE BRIEF

Wittgenstein once argued that no paper read to a scientific society should last more than 15 minutes, because anyone who had anything to say on any subject could easily say it in that time. He would probably have regarded with some horror the Twelfth International Congress of Applied Psychology, which met in London during July 18-23. Few of the speakers named on the programme took less than half an hour, and there were more than a hundred of them. Yet only four special lecturers had been asked to talk for more than 20 minutes. Perhaps many of the others felt that, having come from the ends of the earth, or thereabouts, they could justify themselves—to themselves, or to the bodies which in certain cases had paid their expenses—only by going on and on. Nor was the unbargained-for time always well spent. In fact, and as usual, the people who spoke the longest had the least to say.—*Nature*, 176: 449, 1955.

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TOWARDS AN ETIOLOGY OF ALCOHOLISM: WHY YOUNG MEN DRINK TOO MUCH

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IN 1950 the author had the opportunity of studying the case histories of 146 patients who had been referred to him for alcoholism during the previous nine years. This review suggested that mental illness, in any sense of the word, did not play an important part in the early drinking history of more than a small fraction of these patients.[1]

The clinical investigations had been carried out with the bias that alcoholism was the symptom of a diseased or, at best, a disturbed personality. In spite of this, in 134 cases there was a dearth of information indicating poor mental health previous to the time that heavy drinking became a well-established pattern of behaviour. The information obtained indicated that over 91% of the 146 patients would have become part of the general population of active and productive "average" citizens if it had not been for their alcoholic habits. Similar conclusions have been reached by other investigators.[2] This 91% apparently belonged to Bacon's second group of fairly well-adjusted youths who gradually progressed from social drinking to excessive drinking.[3]

The present study was planned with the intention of investigating any characteristics common to men who were drinking excessively. It was aimed at attempting to grasp the significance these common features might have in the genesis of alcoholism. Some men begin to drink and continue to drink to excess because they are sick or in trouble, but the study mentioned above indicated the regular presence of other features. The manifestations uniformly found could be expected to be more influential in the development of alcoholism than either basic psychopathology, which was discovered in only a small proportion, or sporadic fluctuations in mental health.[4]

In order to avoid discussion regarding the nature of "true" alcoholism and "real" addiction, it was decided to use the phrase "drinking to excess" and to define its use in this report. "Drinking to excess" will refer to the consumption of alcohol in such quantities and so regularly that it is associated with a process which includes the development of increased tolerance of alcohol, alcoholic amnesias and decreased tolerance. It is appreciated that all patients do not experience these changes, but most investigators would agree that those who do experience them are drinking to excess. This particular sequence is considered by the writer to be one indication that addiction to alcohol has been established, using the word addiction in the same sense that it is used with other addiction-producing drugs.[5]

Subjects of this study were men who drank to excess and who were not older than 35 years. An upper age limit was set, because factors common to the younger age group were more apt to play a part in the development of alcoholism and less apt to be a result of that development. Thirty-five years was selected because the middle thirties seem to have some significance in the history of alcoholism; a thirst for alcoholic beverage is more frequently found after that age, and men who cease heavy drinking at a later age seem to be left more often with an obvious and long-lasting change in personality. In order further to avoid including the consequences of persistent heavy drinking, the characteristics mentioned in this report do not include those which developed after alcoholic beverages were regularly sought in an attempt to relieve anxiety and unhappiness, apparently the direct or indirect result of the drinking of large quantities of alcohol. This spiral type of drinking occurred after patients began to get drunk regularly and before the onset of intolerance to alcohol.

This project had been outlined and the above-mentioned criteria selected by the end of March 1952. From then till the end of March 1954, 28 patients had been seen who drank to excess and who were 35 years of age or younger. Two of these started getting drunk on lesser amounts of alcohol following severe injuries to the head. Because of this complication these two were not considered in this report. No patient who drank to excess and who was 35 years of age or younger was eliminated from this report for any other reason.

The remaining 26 patients were in several respects a highly selected group. They were all

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employed and employable. They were either skilled tradesmen or they were approaching the degree of skill and achievement necessary for inclusion in such a classification. They were referred from a group which demanded, on admission, good physical health and at least average intelligence. They were living under conditions which offered good food, good living accommodation and a ready opportunity for the acquisition of friends and acquaintances. When referred they were, as has been said of similar patients, "sick and vastly insecure and threatened from within",[6] but no physical signs were found which indicated anything other than the excessive use of alcohol.

In spite of this, these patients seemed fairly representative of the entire male population. The parental homes represented an economic gradient from the unskilled labourer to the professional group. They came from 26 widely spread communities. Their drinking habits were well established. They were employed by 19 different employers.[7]

The parents of one patient had separated, but none of these 26 men was the child of a home broken by divorce. The mother of one had been in a mental hospital for many years. Another was adopted by relatives when he was an infant. Two had lost their mothers when they were about 11 years of age, and the father of one had died when the patient was 12 years old. The parents of the other 20 were living together and while dissensions were a commonplace in one home, the other 19 couples seemed amicable and warmly attached in spite of occasional high words.

The drinking habits of the parents are indicated below:

Mother.....	tt	tt	t	t	tt	t
Father.....	tt	t	tt	t	hd	hd
Patients.....	5	5	3	7	4	2

tt—total abstainer
t—temperate in drinking habits
hd—heavy drinker.

An interesting reflection of the drinking standards which prevail within the cultural pattern was the original report of seven who first stated that their mothers were total abstainers but later described them as temperate in their drinking habits. One father who is included in the "heavy drinking" group had been a heavy periodic drinker until he was in his forties. He cut down his consumption of alcohol and since then has limited himself to amounts which, at the most, make him unsteady on his feet and he drinks only on accepted festive occasions.

Five patients, three of them sons of fathers who were heavy drinkers, had more conscious feelings of bitterness toward the fathers than feelings of warmth. The parents by adoption, of another, were of middle age. They had deliberately attempted to compensate for what they considered undue laxness toward their own children by the strict training of their adopted son. He developed strong feelings of resentment toward both of them, although most of this seemed to be the result of his belief that he had been adopted and cared for as a duty and not because he was wanted or loved. The yearning for more warmth and affection than he received and resentment because he did not receive the needed warmth and affection were remembered as being experienced before three years of age.

Patterns of behaviour related to visiting and writing suggest something of the generally positive attitudes of the entire group toward one or both parents. One unmarried man, whose home is a few hours from his work, goes home as often as every month. His home offers social advantages which he does not have elsewhere and, while he has acquired many friends in his own environment, he still clings to the social groups in which he was previously established. Eight of the single men usually spend at least part of their vacations at home each year. One who has been married recently has been doing the same up to the present time. Two who have separated from their wives follow the same plan. Fourteen, six of the 11 single men and eight of the married men, have not visited their homes for two years or longer. This includes one who is now a widower, one single man who looks forward to visiting his home during the next vacation, and all the men who are married and living with their wives except the recently married one already mentioned.

The entire 26 write home at Christmas-time and try to remember birthdays. The rest of the time, correspondence with the home is irregular and varies with the same person from once every week or two to once every five or six months. The more frequent letters are a transient result of some sickness or other serious difficulty in the parental home or of a plea by one of the parents.

A number of common features in the histories of these men antedated their drinking experiences. Not one was a "lone wolf" type who had sought or who had enjoyed isolation. They were all men who liked doing things in common with other people and who felt a need to be part of a group. They all enjoyed liking people and they received satisfaction when they were able to show their positive feelings toward other people. They wanted to be liked and were gratified by evidence that other people liked them. They were all sensitive men. Their feelings could be hurt readily but this sensitivity was accompanied by an awareness of the sensitivities of others. They seemed effortlessly careful to avoid giving offence, both in the more obvious ways and by such mechanisms as avoiding topics of conversation which might be uncomfortable or distressing to others. Even under the influence of alcohol there was an appreciable retention of this characteristic, although it tended to disappear with sheer quantity of alcohol and where the conduct of individuals was not in harmony with the standards of the group.

These men all had ideals of behaviour and achievement of such character and magnitude that they were unlikely to be fulfilled. These ideals were not in harmony with their reputations. They considered such aspects of their personalities as so intimate that they did not readily confide them and were careful to keep any obvious indications concealed. Young men have always dreamed, but by 28, the median age at which these patients were first seen, most men have learned to obtain considerable satisfaction from the achievement of some of the things for which they had hoped. These men were accepting even partial successes as evidence of defeat. The resulting distress was being experienced with greater intensity than would be expected in men of their years. The altruistic overtones which were a common feature of their fantasies made them even more susceptible to defeat. For example, the adopted son wanted to find his natural mother and to help her. He did find his mother but he was not able to help her.

In spite of the need felt by these young men to establish warm relations with others, three of them felt that they had never established such a relation with any other men as individuals. Their close association with the group was more apparent than real, although it was a source of much satisfaction. One had always feared that, if he allowed himself to get on a really friendly basis with anyone, he would reveal his connection with a small and isolated minority group in whose cultural traditions he had been raised. He felt that he would be looked down on, once that part of his ancestral background was discovered. For the same reason he had never felt close to any group away from his home community although he had been accepted in several. The adopted son felt that he could never dare to "let himself go", as he said, lest he reveal something about his natural parents. The third had spent his earlier years as one of a minority group in a country where feeling ran high and where violence was a commonplace. The concept of frankness and freedom was associated with what had been a very real danger.

Five patients had had their first drink of alcoholic beverage at ten years of age or younger. Two of them had been given very small drinks regularly when drinks were served in the home. The other three first drank experimentally, accompanied by other youngsters, and without adult supervision. Of those who had had their first drink at later than 10 years of age, 11 took them in their own homes, five at social activities of high-school groups away from their own homes, and the remaining five with a group of fellow-workers. The first drink was taken at a median age of 15½ years.

Four patients began to drink regularly as early as 14 years of age and two began as late as 23 years. Twenty-five of the 26 began to drink regularly when they were working with men who drank regularly as part of the accepted social activity of a group; the remaining man began to drink regularly as part of the social activities of a group of young people in the neighbourhood of his parental home.

Before beginning to drink regularly, 11 were frequently aware that the others had set them aside from the group because of their abstinent habits and they were occasionally subjected to taunts by one or more members of the group. The 11 reported that some of the disciples of Bacchus possessed fervent missionary zeal. These expressed their dislike of non-drinking, temperate drinking or even the skipping of a particular round of drinks in various ways. The milder methods by which disapproval was expressed were such remonstrances as, "What's the matter with you that you won't have

a beer?" or "Think you're too good to drink with the rest of us, do you?" These sentences might be said once with good-natured disparagement or repeated many times tauntingly and belligerently. The more vigorous expressions of dislike for abstinence included enthusiastic attempts to win converts by force, including fists and feet. Those who had not been subjected to this kind of pressure were those who had promptly accepted the alcoholic customs of the group.

The two who abstained till 23 finally began to drink regularly so they would be more closely identified with the group. The median age at which regular drinking began was 18½ years. At the time when they began to drink regularly, two might have gained acceptance by non-drinking groups. These two felt that acceptance in the non-drinking group was difficult to attain but that the beginning of acceptance in the drinking group was simply a matter of drinking.

Not one of these 26 began to drink or to drink regularly in order that he might forget past calamity or impending disaster. At first, regular drinking was an effort to be accepted by the group, and heavy drinking was aimed at gaining prestige in the group. Twenty found from the first that they had a greater toleration for alcohol than most of the persons of their particular groups. They promptly discovered that they could increase their prestige by demonstrating this greater tolerance. These 20 men rapidly learned to use their drinking prowess the same way that they and others used athletic ability or any other manifestation of what is accepted as marking the superiority of one man over another. The motivation was similar to that motivation which results in achievements generally accepted as both healthy and admirable. Four discovered that their tolerance of alcohol was about average for their groups and two found, on beginning to drink, that their tolerance was less than the usual tolerance in their particular groups.

A number of advantages which seemed to be of less importance to the individuals concerned were observed and appreciated by them. The immediate result of drinking was a feeling of greater ease and comfort. Where they had been self-conscious and where they had felt strange, a drink gave them the feeling of being at ease and of being one of the group. This is only in part due to the physiological effect of alcohol. The relief from tension begins to manifest itself even before the actual drinking begins. There is some alleviation with the taking of the glass in the hand, and with the sipping of the drink. This effect of the act of drinking is noticed with the first drink and in part would seem to be the result of the direction of attention and interest to the physical activity. During this early part of the ritual the man preparing to drink has the approving attention of one or more members of the group. He is aware that he is taking part in an activity common to the group which has the general approval of the group. These factors precede the physiological effect of the alcohol and later are supported by that physiological effect.

The need to feel that one is part of a group, the feeling of tension when one is in a group where one is not entirely accepted, and the lack of ease with those members of a group who are generally accorded prestige by the other members can hardly be considered as symptomatic of any basic abnormality in this age group. Adolescents in general have a keen appreciation of their own inadequacies, although they may take elaborate precautions to hide this information from their elders.

Drinking served as a symbol of rebellion against parental authority and a symbol of independence from parental control. It did not seem to be quite as adequate as a symbol for the sons of homes where both parents were temperate drinkers as it did for the sons of parents who were total abstainers. The sons of temperate drinkers seemed to feel that drinking was an assertion of independence but they were consciously aware that their early drinking bouts were symbols of defiance. Any drinking of alcoholic beverages seemed to have about the same symbolic value for the sons of total abstainers as had both drinking and getting drunk for the sons of those who were temperate drinkers. Drinking as a symbol of rebellion and independence was common to the early history of all the subjects of this study. It had a high emotional valency for the four who began to drink regularly when they were 14 but had very little for the two who began at 23 years. Drinking was a symbol of maturity. If a man was earning his own living it was nobody's business if he wanted a few bottles of beer in a beer parlour or if he wanted to share a few drinks of spirits with a friend. They were working like men and they

were taking their drinks like men. Although drinking was originally an assertion of maturity and the symbol of rebellion against parental control, it did not seem to be a stronger element in deciding this particular behaviour than one would expect it to be in deciding on other forms of behaviour in other adolescents.

Soon after beginning to drink with the group, each had been the recipient of approval expressed one or more times by some member or members of the group who were generally accorded prestige in the group. These members of the group would state that they and the others felt different and warmer toward the man who had recently begun to drink because of his drinking with them. The impression was gained that such remarks have much more significance to the man who says them and to the man who hears them than similar remarks over other shared activities such as having dinner.

All of these men rapidly discovered and enjoyed the euphoric effect of alcohol which they referred to as "lift". The euphoria did not occur every time they drank, but it occurred almost every time during the early drinking history. Four patients reported that if they felt low they were not able to achieve the euphoric effect. One reported that he never experienced a euphoric effect if he felt "extra good" before he started to drink but that if he just felt "ordinary" he could almost always count on the development of euphoria and if he were feeling low before drinking euphoria always followed promptly. A general impression was gained that these patients obtained a more intense, longer lasting, and more consistent euphoria than is obtained by most temperate drinkers.

Associated closely with the euphoria was a relief of any minor physical distress from which they might suffer at the time, and a feeling of bodily warmness. The warmth was an enjoyable somatic sensation common to these patients. It paralleled in development and intensity the feeling of euphoria.

Becoming "drunk" became a regular part of the pattern of behaviour at a median age of 19½ years. The periodicity of getting drunk regularly varied with different members of the group and with the same individuals when they were working at different jobs. Usually it was a week-end activity. When work was isolated, as it may be in mines or lumber camps, the episodes of heavy drinking occurred with the opportunity of coming to town, usually at intervals of one to three months. These more widely spaced periods of heavy drinking were longer lasting than the more closely spaced drinking parties.

By the time this stage was developed alcohol was deliberately used for the relief of external or internal stress[9] and as the constant companion of conviviality of any kind. It was expected to diminish not only the tension which may arise from interpersonal relations but also fatigue or chill or pain. The meeting of an old friend and the making of a new one were situations which demanded further drinking. Drinking was enjoyed for its flavour. They all liked the taste of beer and, with no general agreement, the taste of one or more additional alcoholic beverages.

Hangovers, in this early period of the drinking history, differed from the hangover generally experienced by the absence or the relative absence of headache and the mildness of gastric symptoms. Not one of these men had regularly suffered from severe headaches after drinking parties. One suffered occasionally from headaches of moderate intensity. They bothered him no more than the general malaise which followed heavy drinking parties. The headache portion of the hangover, for the others, seemed to be a phenomenon which at the worst was close to the threshold of awareness of ache or pain. They agreed that it was less uncomfortable than the other feelings of discomfort and distress which went with the hangover. One patient had never experienced a headache but all the others reported that they had occasionally suffered from mild headaches. "Big head" was an expression in common use when reporting a hangover. It was used to indicate a feeling of fullness in the head or, in one case, a feeling of a heat inside the skull. Sometimes "big head" was used to include headache but it usually referred to the unpleasant and occasionally distressing sensation of fullness which did not reach such an intensity that it was interpreted as ache or pain. The other usual symptoms of hangover were present after drinking parties. All the men felt tired and dull. They were all thirsty. Frequently they perspired heavily and almost always experienced gastric symptoms which varied from feelings of fullness to those of burning pain. These symptoms later became more intense, but one gained the general impression in this early

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history that gastric symptoms after drinking were less regular and less intense than they are in the general population after alcoholic excess. Only one man of the 26 had never had any such symptoms after drinking parties, even recent ones, other than feelings of fullness in the epigastrium.

Indifference to physical distress is given general approval in our culture as a "manly" characteristic, and in varying degrees it is a commonplace in robust young males. It seemed to be a more obvious characteristic of the patients under discussion than in the general population of this age group. The tendency to minimize the severity of physical distress involves both the reporting of those symptoms and the personal consideration given to them.

By the time these men were getting drunk regularly the use of alcohol had developed into a way of life. Alcoholic beverages and their use were a frequent topic of conversation. The ability to take an active part in such a conversation was an admirable evidence of mature sophistication. Non-drinkers were the objects of depreciatory comments spoken with the assumption of authority. Drinking was the mark of membership in the drinking group while abstinence marked the outsider. The men who were getting drunk regularly kept away from non-drinkers and sought the companionship of other drinking men. They considered any man who did not drink "no good" and "no friend of mine" and regarded him with a mixture of dislike and disdain. All experienced the same feelings varying from an intensity almost as high as that mentioned to a simple tendency to withdraw from contact with the outsider.

The use of alcohol and the companionship of the drinking group were persistently sought and persistently found to be a source of solace, at this period, if anything in life did not give the expected satisfaction or if it carried disappointment. If he were bested at horse-play or criticized on the job he was encouraged to have a drink and to forget about it. If his date turned him down for any reason, he turned to the warm and friendly atmosphere of the beer parlour where he frequently found, not only the sympathy of friends and the solace of alcohol, but also a more congenial date. If his "steady" began to go out with some other fellow he turned to the drinking group till he found another "steady". The juxtaposition of tension-producing experience and an intake of alcohol adequate to relieve the tension was accepted as a regular portion of the pattern of living.[10]

One man of the group developed an alcoholic amnesia after his first drinking experience. By the time the other 25 were getting drunk regularly they had all experienced episodes in which they did not remember getting to bed and wondered how they got back to their rooms. The amnesia under alcohol began to set in earlier in the process of inebriation until it developed while the drinker was still physically active and while he had only minor impairments of his social behaviour. This particular stage in the development was of considerable significance to all these young men. Friends began to remind them of words they had said and of things they had done of which they had no memory. They all encountered with considerable amazement the phenomenon of episodes of reasonable behaviour for which they felt themselves entirely without responsibility. They referred to these alcoholic amnesias as "blackouts". Two patients became intolerant to alcohol before they experienced alcoholic amnesias of this degree and four began to get drunk on smaller amounts at about the same time they realized that they were experiencing alcoholic amnesias.

The subjects of this study had difficulty in remembering just when their tolerance for alcohol had increased. Less than half of them—twelve—had not been clearly aware that they had experienced any increase in tolerance until it was stressed by the decrease. At the development of decreased tolerance of alcohol the entire group had been puzzled by the unexpected effect of what were to them very moderate amounts of alcohol. This puzzled reaction neither was intense nor did it last very long as they had all heard of people beginning to get drunk more rapidly than previously and on smaller amounts of alcohol. In the self-examination which followed the decrease in tolerance, the 12 who had not appreciated their increased ability to tolerate alcohol remembered that shortly before this they had been able to drink not only more than they could at the time of the self-examination but more than when they had first begun to drink. The other 14 had noted their increased tolerance frequently and with gratification.

Nine of the 26 patients were single, one was a widower, two were separated and one was considering a divorce. None of these men was

an overt homosexual and in none of them did unconscious homosexuality seem to be a greater factor than one would expect to find in controls picked at random from reasonably well-adjusted citizens who were making reasonable contributions to society.

In each of the married patients the marriage had coincided with an increase in the amount of alcohol consumed. This was in spite of 12 having made an effort to decrease their consumption of alcohol or to cease drinking entirely either shortly before or soon after marriage. The increased consumption before marriage was partly due to drinking as a response to anxieties about the approaching marriage. This was simply continuing the pattern of meeting with friends and drinking. They had learned that this helped them to cope successfully with anxiety-laden situations.

The larger part of the increased consumption before marriage was due to friends insisting on buying drinks as a matter of congratulation and well-wishing. The post-marital increase was due to the man's repeating the pattern by which he had learned to meet adequately the completely frustrating situation. The beer parlour was the place of solace if the couple quarrelled. Quarrels in the new homes centred about the question of dominance. The husband would say something which was interpreted by the wife as telling instead of asking, or demanding instead of requesting. The retort would be sharp and the husband would not be able to appreciate either the reason for the words or the manner in which the words were expressed. He tolerated it at first but by the 20th or 40th time he would answer sharply and the quarrel would be under way. In 16 of the 17 marriages in this group there could be no doubt about the position of dominance almost from the first meeting. In each case the man hoped that marriage with its shared plans and problems would bring about a change. Five had believed that they would achieve a position of equality and 11 believed that they would take up the traditional position of the dominant male. The behaviour of the wife made obvious her acceptance of the dominant position as a casual right and her belief that this position was more strongly entrenched with engagement and still more so with marriage. The one woman of this group who did not establish her dominant position early in her relationship with her future husband established it rapidly but subtly after marriage. When the man began to appreciate his position in the home, he turned to the beer parlour as a place of solace and equality.[11] Drinking now became a symbol of rebellion against the authority of the wife as it had been earlier against the authority of the parents.

That 12 of the 26 came from homes in which one parent used alcohol and in which the other was a total abstainer lends some support to the conclusions reached by Jackson and Connor on the influence of parental attitudes.[12] The large proportion coming from homes where there were widely different points of view on drinking suggests the importance of ambivalent attitudes within the family structure. Six patients felt that their mothers had been too persistently critical of their father's indulgence in alcohol. The six mothers had been total abstainers. Four of these fathers had been heavy drinkers but two of them had never consumed more alcohol than would occasionally cause them to become unsteady on their feet. The four sons of the heavy-drinking fathers believed that the attitudes of the mothers had been partly to blame for the alcoholic excesses of the fathers. These six patients frequently ruminated over the memory of their fathers when they themselves were drinking. They reported that, on some of these occasions, they would feel "real good" because they were doing something which the father had done and had enjoyed doing. They described feeling as if in some way the drinking increased their "claim" on the fathers and said it made them feel more like "real" sons. On other occasions they would feel closer to those periods when the father had been good to them. One, whose father had been the source of much criticism, both from the community and from the mother, reported that when he was drinking heavily he would sometimes feel as though his heavy drinking made the father "better". Further investigation revealed that he was sharing the blame and doing penance for the guilt of the father. He was not aware of any hint of such concepts in any of his religious training. The death of one father who had been a heavy drinker was followed by the son's drinking more heavily than before. He was conscious of a strong feeling of personal loss. He reported that after the death of the father he had felt as though he had depended on the support of the father. The patient had not been aware of any such dependence since about 16 years of

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age when he left home and began to earn his own living. He had not seen the father more than four or five times in the eight years before he died.

These men had all changed jobs three or more times. If a man had started to drink regularly, a change of job was always the occasion for more drinking. Part of this seemed to be an attempt to establish himself in a new group and part of it to still a sense of inadequacy among strangers. Another factor was that these men had not yet established a new and a satisfying set of activities. They did not know quite what to do with themselves and the drinking of alcohol was a "pastime". One volunteered that it was the only pastime that he knew and, while the others were not so consciously aware of this purpose behind their drinking, it was present in all of them. The drinking pattern was easy to continue and it offered a multiplicity of satisfactions. They liked drinking and so they drank.

The man whose first drink began a drinking bout which was continued into a period of alcoholic amnesia began the habit of drinking when he awakened. A friend introduced him to the virtues of a drink as a pick-me-up. After this he took a stiff drink regularly on the morning after a drinking party. Eight began morning drinking in an effort to relieve the discomfort of the hangover shortly after they began to drink regularly and before getting drunk regularly. By the time they were getting drunk regularly, all were using a drink to help them get started the day after. Six made no particular provision about this, but 20 made consistent efforts to keep themselves provided with the medication which they had found to relieve their symptoms satisfactorily.

Solitary drinking was such a casual event for these men that they had no particular memory of when it started. They had all heard that it was not good to drink alone but this was accepted as an old saw of no particular significance. Once they had begun to drink regularly with a group, they were all drinking on occasion by themselves. They drank alone if they felt like a drink and if there was no one around to share it with them. The "feeling like a drink" meant feeling thirsty, or bored, or lonely. During that portion of the drinking history under consideration solitary drinking was second in importance to their regular social drinking. After they began to get drunk regularly, going in for a beer usually ended in inebriation, but before this, going in for a drink usually meant taking one or two.

When first seen, all of these men had developed a variety of very real problems. Their personal lives were stressful and unsatisfactory. Their circle of friends had been circumscribed till it seemed in the process of becoming more and more limited to others who were drinking heavily. Social activities were being selected largely on a basis of the quantity of alcoholic beverage which would be available. They were in difficulties at their work. They were unhappy except when they were under the influence of alcohol, and even the euphorias were of shorter duration than they had been previously. The relief from anxiety and tension was also of short duration. Depression was constant except when relieved by the adequate intake of alcohol. This total picture only developed after the pattern of regular drinking to drunkenness was followed by the alcoholic amnesias and the intolerance of alcohol.

These patients all exhibited a low tolerance of frustration.[13] They could not appreciate the necessity for tolerating the lack of satisfaction which goes along with striving and lack of success. They had learned over the years that it was not necessary to tolerate such feelings. They had become accustomed to turning to what was generally accepted as not only a harmless answer but a good answer to feelings of defeat. In addition they lacked experience in discovering substitute gratifications which would in part compensate for lack of success. If they had not discovered that alcohol was a satisfactory means of alleviating the pangs of defeat and fortified that discovery by repeated experience, they would have had a better chance of developing other means of meeting such experiences. During late adolescence and early adult life they had progressively used this one technique which limited their chances of developing "a mature and healthy self-esteem as a result of coping successfully with their environments".[14] Although common to the later histories, the inability to meet failure and lack of gratification successfully was not a more striking characteristic of the early histories than it is in other young men of comparable age.

Several characteristics common to this group seem somewhat vague when formulated, in spite of their being very obvious when observed.

These patients gave the impression of possessing superior toughness and hardness, even compared to the robust larger group of which they were a part. None of them had ever had trouble getting work, and when not detrimentally influenced by drinking habits they were considered to be excellent workmen. Academic achievement ranged from grade eight to grade thirteen but, considered in combination with the work reports, the general impression coincided with the report by Murphy that "the general intellectual ability of alcoholics as a mixed social class is above average".[15] This may be a reflection of an economic system which, since alcoholic beverages are relatively expensive, exercises a certain selectivity over those who are able to drink to excess persistently. Again, as a group, these patients seemed better endowed with those valuable and very real characteristics which are indicated by such terms as charm, graciousness, spontaneity and cheerfulness. The graciousness and the charm may partly result from much time spent with the drinking group where social skills are at a premium. It is unlikely that such practice would result in an increased spontaneity and cheerfulness.

During adolescence these men had been thrust into social groups in which drinking regularly and to the extent of drunkenness was an accepted and approved custom. Associated with taking part in this activity were the accolades which could be expected from successfully taking part in a highly approved group activity, and associated with abstemiousness was the disapproval of the group. Not one began to drink or began to get drunk because of personal problems, although they all had the personal problems common to their age and their sex. Empathy, which Stewart reported to be an important active principle in the group therapy of alcoholics,[16] was the most important single element in the development of excessive drinking. They were social people. They obtained satisfaction from an awareness of existing good feelings themselves and from the privilege of expressing their own good feeling toward others. They were sensitive men, easily hurt but considerate of the feelings of others. They were cheerful, spontaneous and gracious. They all had feelings of insecurity and inadequacy when they began to drink, but few adolescents escape from some similar doubts about themselves. The euphoria following the drinking of alcohol occurred more readily and was more intense and longer lasting than is reported by more casual drinkers. The drinking and the flavour and the somatic results of drinking were enjoyed and valued. The price in headaches and gastric symptoms was light. These young men were sick when they were referred as patients, but they were not sick when they began to drink. Three of them had found in alcohol valued assistance in compensating for severe personality defects, but even in these men the same personal, physical and cultural factors were operative which determined the alcoholic habits of the men who did not originally have any such difficulties. There seems to be no typical alcoholic personality prior to alcoholism,[17] but there are characteristics and experiences common to those who become alcoholics.

SUMMARY

1. This report is concerned with the early characteristics and experiences common to 26 men who were referred because of chronic alcoholism.

2. The common physical characteristics would ordinarily be considered to be those of strength, and the common mental characteristics to be those ordinarily of value to the individual and to the group.

3. The common environment was exposure to a situation where the only available social group was one in which regular drinking to a state of drunkenness was an approved social activity.

4. Vulnerability to alcoholic disease depends on the continued exposure to this particular environment of an individual who has these specific physical and mental characteristics.

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MACROGLOBULINÆMIA*

Effect of macroglobulins on prothrombin conversion accelerators

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MACROGLOBULINÆMIA was first reported by Waldenström in 1948.[1, 2] The main characteristic of this syndrome was the presence of serum globulins having an abnormally high molecular weight. Serum macroglobulins were easily detected in the presence of distilled water (euglobulins). The flocculation of the abnormal globulins readily disappears in a sodium chloride solution. The clinical features of "idiopathic macroglobulinæmia" have been well discussed by Waldenström,[2] Schaub,[3] Tischendorf and Hartmann,[4] Wuhrmann,[5] Wilde and Hitzelberger,[6] Kanzow,[7] and Layani and collaborators.[8] A progressive asthenia and an hæmorrhagic tendency are usually present. However, purpura is a very rare clinical manifestation and, according to Kanzow,[7] this permits differentiation of "idiopathic macroglobulinæmia" from "purpura hyperglobulinæmia", also described by Waldenström.[2] In addition, there are a moderate adenopathy, hepatosplenomegaly and pseudo-Raynaud syndrome manifestations.

The aminoacid composition of macroglobulins has been investigated by Pernis, Wuhrmann and Wunderly[9] and Mandema, van der Schaaf and Huisman.[10] Wilde and Hitzelberger[6] insist on the ultracentrifugation of the macroglobulins as the *sine qua non* for a diagnosis.

The interest of the present publication lies in the unusually good outcome in a case of macroglobulinæmia after splenectomy and in the definite effect of macroglobulins on blood coagulation. Some pathological and biochemical aspects of this syndrome are also presented.

CASE HISTORY

The patient was a 40-year-old white woman whose first complaints were those of an abdominal tumour, loss of weight, asthenia and dysuria. At the time of her admission to Hôtel-Dieu Hospital in Montreal in November 1953, she had noticed an increase in size of her abdomen for the past year. She never had any pain but complained of mechanical discomfort. The recurrence of herpes of the mouth was noted during ten years. Her past history was non-contributory except for an appendectomy and a subtotal hysterectomy for fibroids in June 1947. She had also had a tonsillectomy in 1938. Physical examination in 1953 revealed a generalized mild lymphadenopathy, a huge spleen and a slightly enlarged liver.

Laboratory data. – Peripheral blood: hæmoglobin value 7.4 g. %; red cell count 3,370,000; white cell count 4,850 with a differential count showing 54% neutrophils, 46% lymphocytes. Platelets numbered 91,200 (Rees and Ecker). Prothrombin concentration was 35% (bedside technique[11]). Thymol turbidity was 8.80 units; bromsulphalein 4%. Because of a positive Wassermann at 1 in 256, the patient was referred to the dermato-syphilologist for consultation. The only abnormal finding was that the reaction to light of the right pupil was greater than that of the left one. The fundi and C.S.F. were normal. She was temporarily discharged after a course of penicillin therapy (6,300,000 units) with a tentative diagnosis of infectious hepatosplenomegaly, probably luetic in origin.

She was again hospitalized in May 1954 for further investigation. Her complaints were identical with those on her first admission except for the loss of a few more pounds; she now weighed 95 lb. She was pale, asthenic and subfebrile. The liver was palpable 4 cm. below the costal margin, smooth and tender. The spleen was extremely enlarged; the inferior limit occupied the left pelvis and part of the right iliac cavity. Lymph nodes were palpable along the cervical chains and in the axillæ and groins. No purpura could be found and she never had any history of hæmorrhagic diathesis. Syphilis was ruled out by the Treponema immobilization test.[12]

Laboratory data.—Hæmoglobin value 6.6 g. %; red cell count 2,340,000; hæmatocrit 23%; white cell count 4,500 with a differential showing neutrophil promyelocytes 1%, neutrophils 44%, eosinophils 3%, lymphocytes 46%, monocytes 4%, plasma cells 2%. The erythrocyte sedimentation rate (Wintrobe, corrected) was 34 mm. in one hour and the prothrombin concentration fluctuated between 13 and 21%. Fibrinogen, 244 mg. %, total proteins 7.32 g. % ($CuSO_4$ technique); albumin 2.92, alpha globulins 1.28; β globulins 0.9 and γ globulins 2.18. Bromsulphalein 3.5% and thymol turbidity 12.80 units. The cadmium reaction[13] was negative, requiring eight drops before cloudiness appeared. Bence Jones proteins could never be demonstrated in the urine and the serum was free of cryoglobulins. Blood viscosity 1.65 (Ostwald viscositometer, 22-24° C., N-1.56). X-ray investigations of the chest, the gastrointestinal tract and kidneys were non-contributory. The peripheral blood smear showed a slight anisocytosis and marked rouleaux formation of erythrocytes. Platelets appeared to be slightly decreased and there was a relative lymphocytosis (2,070).

The myeloid-erythroid volume[14] of the bone marrow was 4%. The smears showed an invasion of the marrow by somewhat atypical lymphoid cells (50.4%). They were medium-size to large lymphocytes 9 to 13 micra in diameter. The nucleus, round or oval and sometimes eccentrically placed in the cell, occupied 2/3 to 4/5 of the cellular body. The chromatin stained violet and showed large irregular masses with occasional nucleolar vestiges. The parachromatin was distinct and pink in colour, but the cytoplasm was homogeneous without azure granules or vacuoles.

Lymph node biopsy of the left axilla revealed a non-specific lymphadenitis, and, when repeated in the right axilla, a lipomelanotic reticulosis. Because of the marked mechanical discomfort, splenectomy was advised and was carried out on July 5, 1954. Besides a marked hepatosplenomegaly, there was a generalized periaortic lymphadenopathy. Lymph nodes about 1 to 3 cm. in

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diameter were palpated in the hepatic and splenic hila. A spleen weighing 2,975 g. was removed, and abdominal lymph node and liver biopsies were performed at the time of operation. The histological data will be discussed below. The operation and the postoperative course were uneventful. The patient was seen at regular intervals, and ten months after splenectomy had gained 38 lb. She is now living a normal life and is back at work. The liver is no longer palpable and there is no adenopathy.

BLOOD COAGULATION STUDIES

A routine coagulogram was as follows: bleeding time (Duke) 1 min. 45 sec., coagulation time (Duke) 5 min. 15 sec., platelets 91,200, prothrombin time (Quick) 22".2/12".0. The protamine titration[15] did not reveal any abnormal heparin-like anticoagulant and gave a heparin concentration of 5 mg. for one hundred c.c. of blood.

Because of the prolonged Quick prothrombin time, it was decided to rule out any deficiency of prothrombin conversion accelerators by the techniques described by Owren[16] and Stefanini.[17] These tests were carried out on whole plasma and on plasma treated with distilled water to flocculate the macroglobulins. The supernatant fluid of the latter was used as macroglobulin-free plasma.

TABLE I.

STEFANINI'S AND OWREN'S TESTS ON PATIENT'S PLAIN PLASMA COMPARED WITH PATIENT'S PLASMA TREATED WITH D.D.H_2O. THE RESULTS IN SECONDS ARE COMPARED WITH NORMAL CONTROLS

Factor determined	*Patient's plain plasma diluted 1/5 with saline*	*Patient's plasma diluted 1/10 with D.D.H_2O.*
Quick P.T.	41.6/23.0	44.0/43.0
Prothrombin	30.4/19.2	24.2/23.6
Proconvertin	42.4/26.8	31.5/33.0
Proaccelerin	37.4/23.4	22.8/23.0

Table I indicates the abnormal coagulation times obtained when the plasma was diluted with saline. The prothrombin, proaccelerin and proconvertin concentrations appear to be decreased when compared with those of normal plasma. On the other hand, when the patient's plasma was diluted with distilled water (D.D.H_2O) to be free of macroglobulins, all the concentrations in prothrombin, proaccelerin and proconvertin were identical with concentrations of a normal plasma diluted with D.D.H_2O. The prolongation of coagulation times apparently was due to the presence of macroglobulins. To test this assumption, macroglobulins were added to a normal coagulation system, and the modified Quick prothrombin time was again determined. The data are summarized in Table II. Coagulation of normal plasma was delayed when the patient's plasma containing macroglobulins was added. Macroglobulin-free plasma did not prolong Quick prothrombin time of a normal plasma. The addition of 0.1 c.c. of thromboplastin in the Quick coagulation system does not affect the coagulation time of the patient's plasma, and this presumes an absence of antithromboplastin. The presence of an active antithromboplastin would also have prolonged the coagulation time.

TABLE II.

EFFECT OF MACROGLOBULINS ON QUICK P.T. OF A NORMAL PLASMA

Quick P.T. +	*Coagulation time in sec.*	
	Normal	*Patient*
Nothing added	12.0	22.2
0.1 c.c. of saline	13.4	23.2
0.1 c.c. of thromboplastin	13.8	21.8
0.1 c.c. of patient's plasma	41.8	
0.1 c.c. of macroglobulins dissolved in saline (1/5 initial vol.)	20.6	
0.1 c.c. of patient's plasma deprived of macroglobulins		13.8

EFFECT OF MACROGLOBULINS ON PROCONVERTIN AND PROACCELERIN TIMES

These tests were performed according to the following technique, and the results are summarized in Table III and graphed in Fig. 1. To demonstrate the anti-

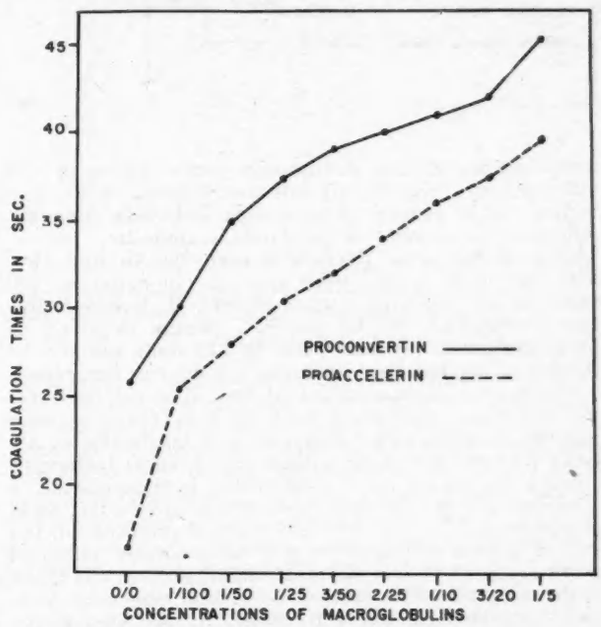

Fig. 1.—The effect of macroglobulins on proconvertin and proaccelerin.

proconvertin effect of patient's plasma precipitate (macroglobulins), different concentrations of this precipitate dissolved in saline were added to a coagulation system which consists of plasma from a patient with hypoproconvertinæmia,[18] stored ox serum, thromboplastin and $CaCl_2$. On the other hand, to demonstrate the antiproaccelerin effect of the patient's macroglobulins, different concentrations of macroglobulins were added to a coagulation system consisting of normal plasma incubated 20 minutes at 50° C., plus $BaSO_4$ treated ox plasma, thromboplastin and $CaCl_2$. The purpose of using such a system was to see whether the precipitate had any action on the correcting effect of proconvertin and proaccelerin on systems deprived of prothrombin-conversion accelerators. It can be seen that the proconvertin and proaccelerin times increase with an increase of the precipitate concentrations, as if macroglobulins had an antiproconvertin and antiproaccelerin action.

The prothrombin time of the patient's plasma was studied by the two-stage technique[19] to appreciate the effect of macroglobulins on prothrombin. The normal prothrombin unit concentration per c.c. of plasma by the Ware and Seegers two-stage technique is approximately 250 units per c.c. of plasma in our laboratory. It was found that the two-stage prothrombin time of the pa-

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TABLE III.

EFFECT OF MACROGLOBULINS ON PROCONVERTIN AND PROACCELERIN

	MACROGLOBULINS/cc	0 0	0 01	0 02	0 04	0 06	0 08	0.1	0.15	0.2
	SALINE/cc	0 2	0.19	0.18	0.16	0 14	0.12	0.1	0.05	0.0
THROMBOPLASTIN 0.1cc CACL2 0.1cc CONGENITAL HYPO-PROCONVERTINEMIA PLASMA 0.1cc STORED OX SERUM 0.1cc — 167 0" — 13 4"		25.8"	30 0"	35.0"	37 4"	39 8"	40.0"	41.0"	42.0"	45.2"
THROMBOPLASTIN 0.1cc CACL2 0.1cc PLASMA 50%/20' 0.1cc BaSO4 OX PLASMA 0.1cc — 60 0" — 13.6"		16 4"	25.4"	28 0"	30 4"	34.0"	36.0"	37.4"	39.4"	41 4"

tient's plasma gave a prothrombin concentration of 170 units per c.c. Fig. 2 indicates that diluting 1/10 of a volume of a normal plasma with D.D.H_2O does not influence the number of prothrombin units in a normal plasma if the same dilution is corrected in step two. The final yield is 267 units per c.c. compared to 250 units for an undiluted normal plasma. If, however, this test is repeated on the patient's plasma deprived of macroglobulins, the final yield is 142 units per c.c. of plasma compared to 170 units per c.c. if the test is performed on plain patient's plasma. It is believed that this difference may be covered by the indices of error inherent in the test itself and is not statistically significant. In step one of the Ware and Seegers technique, when a normal plasma is defibrinated in the presence of a solution of macroglobulins instead of saline, the final yield of prothrombin approaches 240 units of prothrombin per c.c. of plasma compared to 250 units for an undiluted normal plasma. The yield of a normal plasma was 257.5 units of prothrombin even when in step two 1 c.c. of a macroglobulin solution was added to 0.1 c.c. of defibrinated plasma plus 1.4 c.c. of normal saline. The finding that macroglobulins have no apparent action on the final prothrombin yield of a normal plasma is of interest. A slight delay in prothrombin-conversion action was noted when macroglobulins were added to the coagulation system. If there is a direct action by macroglobulins on prothrombin conversion—that is, an antiproconvertin and antiproaccelerin action—this was not manifested by the two-stage technique, and the only explanation appears to be a question of dilution. No antiprothrombin effect stands out, according to the results found in the two-stage technique. There is, however, a definite prothrombin decrease in the patient's plasma according to the Ware and Seegers two-stage prothrombin time test which was not demonstrated by the one-stage method.

PAPER ELECTROPHORESIS*

Paper electrophoresis of the patient's serum was carried out at various intervals before and after the operation. The apparatus used was a modification of the horizontal method of Grassman, Hannig and Knedel.[20] Separations were obtained with 0.05M veronal buffer at pH 8.6 during 15-hour runs. The strips were stained for protein with amido-black,[20, 21] for carbohydrate with fuchsin,[22] and for lipids with sudan black NB. Optical densities of the stained strips were determined by means of the Eel densitometer.

Figs. 3 and 4 illustrate the marked changes in the electrophorograms of samples taken before and long after the operation, while the data for the complete series of samples are shown in Tables IV and V.

The preoperative serum is characterized by the presence of intensely staining fuchsin-reactive material in the gamma-globulin fraction. This material does not have the same mobility as normal gamma-globulin, since it remains exactly at the origin under the conditions used here. After operation, this material gradually disappears and gives way to a gamma-globulin fraction of more normal appearance. Some lipid also appears to be associated with the abnormal protein, but this could be an artefact. As mentioned above, dilution of the serum with distilled water causes precipitation of some of the protein. This material, recovered by centrifugation, dissolved in saline and placed in the electrophoresis apparatus, yielded only one band at the origin which stained intensely with fuchsin, but little or not at all with sudan black NB. Ultracentrifugation of this material showed the presence of a high molecular weight protein of about 19 Svedberg units.*

Minor changes were also observed in the other fractions. Beta-globulin increased, while $alpha_2$-globulin decreased. There was no significant change in the alpha, fraction. Albumin gradually increased to nearly normal values with a concomitant increase in the albumin-globulin ratio as determined either by electrophoresis or by the sodium sulphate fractionation method of Gornall.[22]

While there was no change in the total serum protein during the entire study, a gradual and very marked decrease in fuchsin-staining material occurred. Six months after operation only about 30% of the original carbohydrate remained.

Again, while the distribution of protein in all the fractions except the gamma globulin was not markedly altered, important changes in the relative distribution of carbohydrate in all the fractions were observed. The preoperative serum showed 45% of the total carbohydrate in the gamma globulin, 40% in the $alpha_1$ and $alpha_2$ globulins, 15% in the beta globulin, and none in the albumin. Immediately after operation, the gamma-

*This part of the work was supported by Grant No. 27 of "La Fondation Rhéaume," Université de Montréal, and was performed by one of us, M.F.

*We are indebted to Dr. B. Rose, Royal Victoria Hospital, Montreal, for the ultracentrifugation of the macroglobulins.

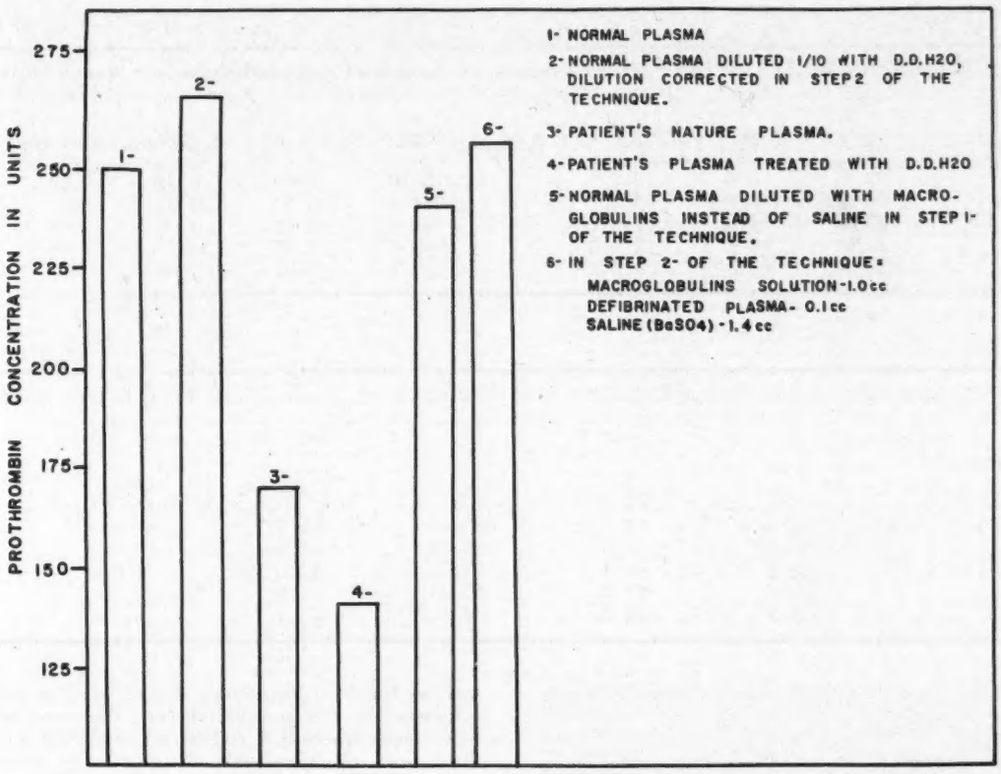

Fig. 2.—Effect of macroglobulins on prothrombin studied by the two-stage determination.

globulin level fell to 27% and the albumin rose to 13%, with no change in the other fractions. Gradually carbohydrate disappeared from the albumin, increased to 56% in the alpha$_1$ and alpha$_2$ fractions and to 20% in the beta globulin, and remained steady in the gamma globulin.

PATHOLOGICAL FINDINGS

Spleen.—Grossly the spleen was much enlarged, measuring 30 x 16 x 9 cm. and weighing 2,975 g. Its general shape was preserved, and deep notches were seen along its superior-external border. The capsule was tense, thin and transparent. On the cut surface the Malpighian bodies were conspicuous because of their number and large size. Their diameter varied between 1 and 2 mm. They were well demarcated and stood out on the background of the red pulp, which was normal in appearance.

Microscopical sections of the spleen (Figs. 5 and 6) showed an intact capsule and structurally preserved splenic tissue, consisting of a red and white pulp. However, there was an abnormal excess of white pulp, which to all appearances accounted for the splenomegaly. This excess of white pulp resulted predominantly from an

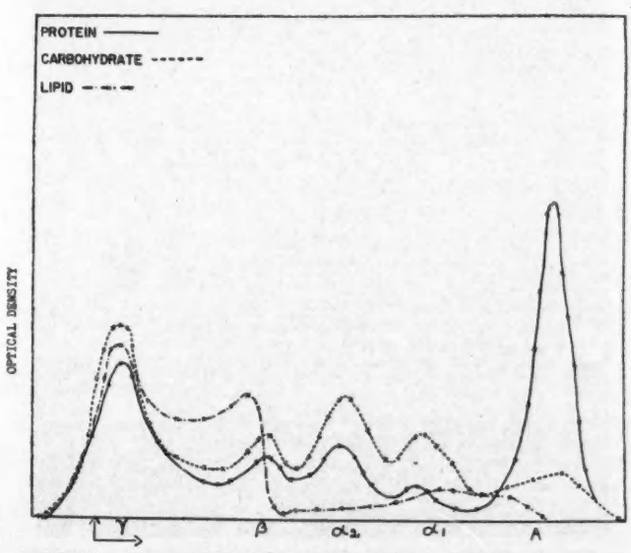

Fig. 3.—Electrophorogram of serum taken one month before operation: ———— protein (amido-Schwartz). - - - - - - - carbohydrate (fuchsin). --.--.--.--.--.--. lipids (sudan-black NB).

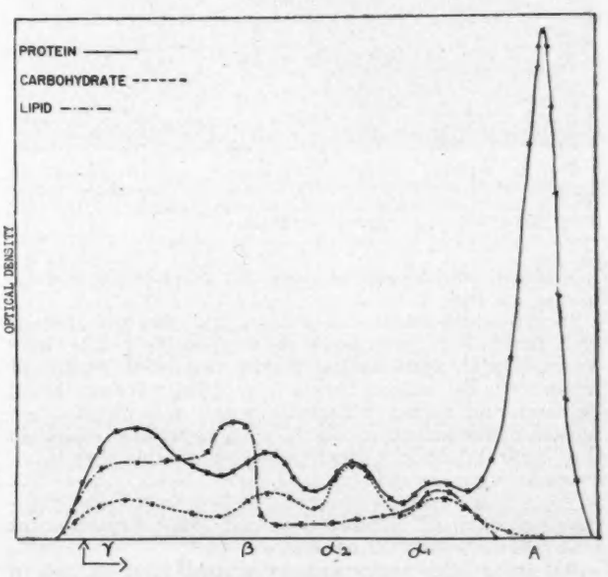

Fig. 4.—Electrophorogram of serum six months after operation, staining as above.

TABLE IV.

RESULTS OF ELECTROPHORESIS OF THE PATIENT'S SERUM AT VARIOUS PERIODS BEFORE AND AFTER OPERATION

Protein *Date*	*γ*	*β*	*α2*	*α1*	*Alb.*	*A/G*	*A/G biuret*	*Albumin*	*Total prot.*
6/12/54.....	33.8	9.6	12.2	4.3	39.0	0.64	0.52	122	365
8/ 4/54.....	26.0	10.6	13.5	5.1	44.4	0.81	0.81	161	360
9/20/54.....	22.0	14.6	12.0	3.4	48.0	0.91	0.93	189	390
11/29/54.....	24.9	12.6	12.9	3.1	46.4	0.87	——	——	——
1/17/55.....	23.0	14.0	9.5	4.1	49.0	0.97	1.04	190	378

TABLE V.

RESULTS OF ELECTROPHORESIS OF THE PATIENT'S SERUM AT VARIOUS PERIODS BEFORE AND AFTER OPERATION

Polysaccharide *Date*	*γ*	*β*	*α2*	*α1*	*Alb.*	*Total carbohydrate*
6/12/54.....	43.5	14.8	30.5	11.5	——	1200
8/ 4/54.....	26.7	17.0	28.2	14.5	13.4	1235
9/20/54.....	28.0	19.4	33.5	14.3	6.0	817
11/29/54.....	30.5	17.2	37.4	15.2	——	558
1/17/55.....	25.8	20.2	36.0	20.1	——	366

Fig. 5.—Spleen (×60). Enlargement of the lymphoid nodules of the spleen by proliferation of lymphoid tissue in the marginal zone of the nodule (halo). In the red pulp, presence of secondary nodules.

increase in volume and number of the lymphoid nodules of the spleen.

In favourable transverse sections, the enlarged Malpighian bodies had three easily distinguishable parts. There was a central, pale-staining portion consisting mainly of reticular cells, macrophages with phagocytosed blood pigment, and nuclear fragments, with a few plasmocytes. Irregular threads of hyalin were occasionally found in this central region, which was practically devoid of mitoses.

This clear centre was surrounded by a middle, dark-staining zone of densely crowded small lymphocytes where mitoses were infrequent.

All around this agglomeration of small lymphocytes, in the marginal zone of the nodes, there were a pale well-demarcated rim of lighter-staining round cells reminiscent of the halo formations described in so-called hypersplenism. In the peripheral rim, the predominant cells were medium-sized lymphocytes, admixed with lymphoblasts and reticular cells. Mitoses were numerous. The network of reticulin fibrils was denser than in the inner layers of the lymphoid nodules.

The red pulp was well preserved but studded with secondary lymphoid nodules, developed around the arterioles. The secondary nodules consisted of an inner layer of small lymphocytes and an outer rim of actively proliferating medium-sized lymphocytes, so that their architecture was similar to that of the Malpighian bodies.

Except for these secondary nodules, the framework of the red pulp was essentially normal, and there was no excess of free cells. However, iron staining revealed a notable amount of irregularly distributed hæmosiderin.

Liver.—The liver biopsy specimen was a thin but relatively large tissue block of nearly rectangular shape, measuring 12 x 20 mm. This tissue block was fixed in

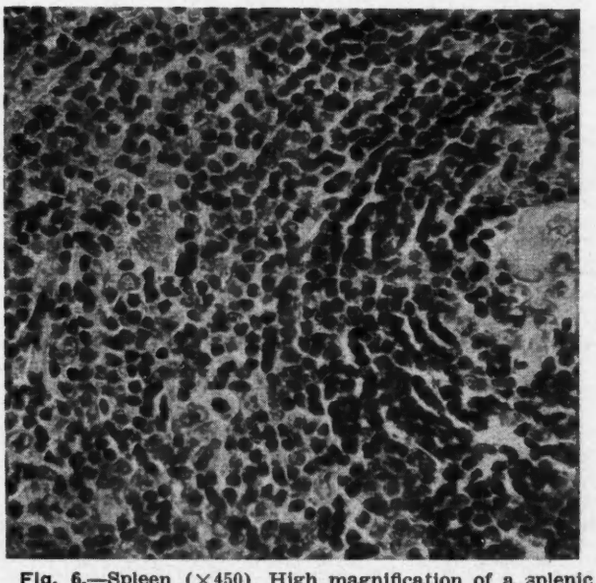

Fig. 6.—Spleen (×450). High magnification of a splenic nodule showing, from left to right, the pale centre of the nodule, the intermediate zone of closely packed small lymphocytes, and the outer or marginal zone composed of reticular cells, lymphoblasts and lymphocytes.

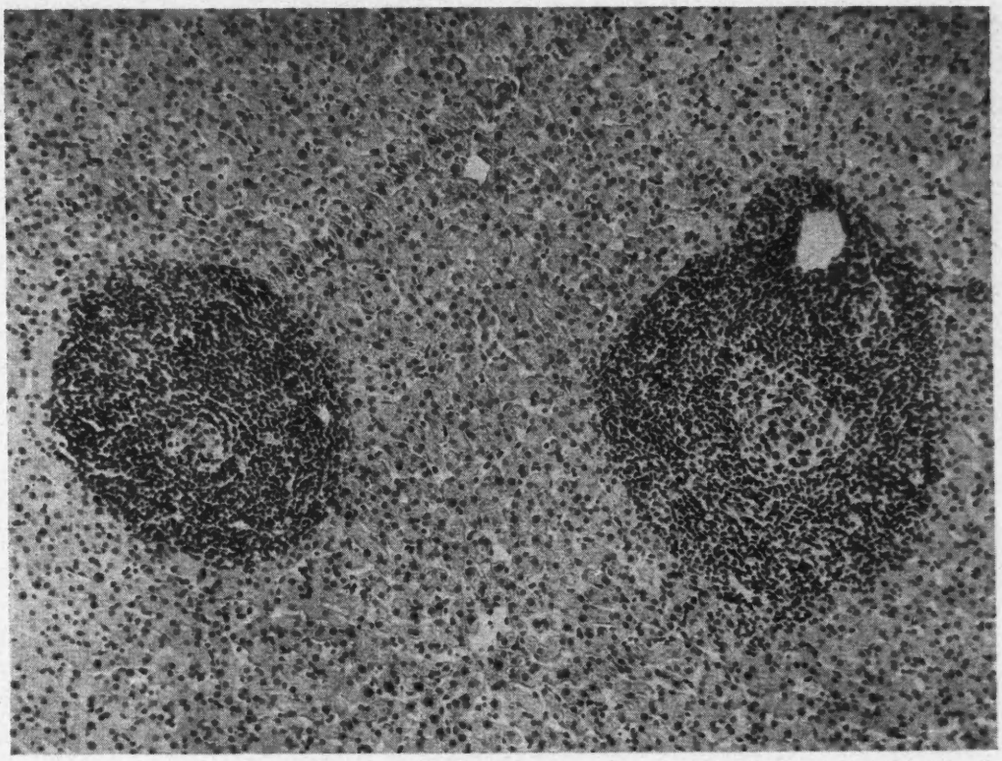

Fig. 7.—Liver (×120). Enlargement and diffuse lymphocytic infiltration of portal tracts. In the lymphoid masses one may see pale centres.

brazil and embedded in paraffin. At low magnification (Fig. 7), there was normally stained liver parenchyma of normal structure, while the ramifications of the portal tracts stood out because of their large size and dark staining. The alterations in the portal tracts were due to dense accumulations of round cells which obscured their normal architecture.

Smaller intralobular collections of round cells were occasionally seen, most of them close to the hepatic veins. At higher magnification, the round cells were seen to be mainly small and medium-sized lymphocytes, with an admixture of lymphoblasts and reticular cells. Here and there, clear centres, essentially made up of reticular cells, stood out in the nodular accumulations of lymphoid cells. In many places, numerous transitional forms were seen between lymphocytes and plasma cells. This tendency of lymphoid cells to change into plasmocytes was all the more striking in the liver because it was practically nonexistent in the spleen.

The intrahepatic biliary system was essentially normal. A scant amount of hæmosiderin was seen in the portal tracts and in the lobules.

Lymph nodes.—Two lymph nodes about 5 mm. long, with surrounding cellulo-adipose tissue, were excised for histological examination. At low magnification (Fig. 8), the normal markings of the medullary zone were obliterated by a mass of closely packed lymphocytes, while cortical sinuses were still apparent. The capsule and surrounding cellulo-adipose tissue were infiltrated by lymphocytes.

At higher magnification, numerous erythrocytes and macrophages laden with hæmosiderin were seen in the cortical sinuses. Reticulin stains showed that the medullary sinuses were still present, although obscured by the lymphoid infiltration. In summary, the anatomical changes were essentially characterized by an overproduction of lymphoid cells.

This overgrowth was most apparent in the spleen, where it resulted in an enormous splenomegaly. It was nodular and organoid, and resulted from an active proliferation of lymphoid tissue in the marginal zone of the nodules and lymphoid sheaths. The white pulp was thus seen surrounded by a clear halo. The microscopic picture was structurally the very reverse of follicular lympho-blastoma.

In the liver, the lymphoid infiltration was mostly confined to the portal tracts and the histological picture was reminiscent of chronic lymphatic leukæmia. However, the tendency to formation of plasma cells was a feature not usually seen in leukæmia.

In the lymph nodes, diffuse lymphoid infiltration with invasion of the capsule could not be distinguished from that usually seen in lymphoma.

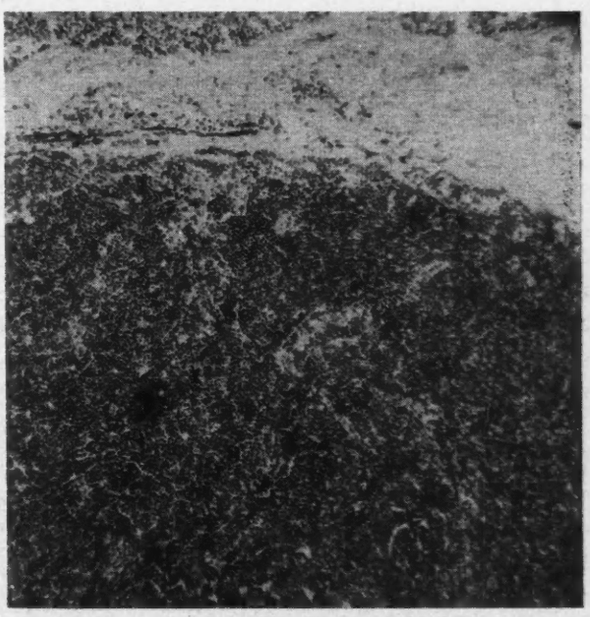

Fig. 8.—Lymph node (×60). Diffuse lymphocytic infiltration with obliteration of medullary sinuses. Preservation of cortical sinuses. Lymphocytic infiltration of the capsule and loose adipose tissue.

The pathological diagnosis was malignant lymphoma primary in the spleen and spreading to the lymph nodes and liver.

COMMENTS

This new case of Waldenström's syndrome shows similarity to those previously reported, although the clinical features differ in several respects. External generalized mild lymphadenopathy of unspecified nature with a concomitant loss of weight, asthenia and hepatosplenomegaly is part of the picture of this syndrome, though not with a spleen as large as in the present case. The majority of investigators consider the hæmorrhagic tendency as an integral part of this syndrome, although Schaub and Wuhrmann's patients showed no hæmorrhages. No previously reported cases mention hypoprothrombinæmia except for one instance encountered by Frick.[24] Little is known about the exact mechanism of the blood coagulation defect in macroglobulinæmia. Our patient never showed a bleeding tendency even with a low prothrombin concentration. Because of an increase in tissue mast cells, Tischendorf and Hartmann were of the opinion that heparin or heparin-like substances accounted for the bleeding tendency of their patients. Stefanini[25] stipulates that the antithrombin mechanism resides in the pathological protein with subsequent deficiency in fibrin formation, and moreover that this foreign protein may also inhibit the formation of thromboplastin. Subsequently, macroglobulins would have two distinct effects, antithromboplastic and antithrombic. The presence of antithromboplastin was ruled out and no abnormal heparin concentration could be detected in the plasma of our patient.

It appeared, by routine prothrombin determination, that the blood coagulation defect concerned the yield of prothrombin, and it was demonstrated that macroglobulins have an action similar to that of an antiproconvertin and an antiproaccelerin. However, prothrombin determination by the two-stage technique showed a slight decrease which was not manifested by Owren's and Stefanini's techniques, perhaps because the prothrombin deficiency was not sufficient to be detected by the latter techniques. On the other hand, it was demonstrated by the one-stage method that macroglobulins had a direct effect on prothrombin conversion factors, and that this effect was not evident in the two-stage prothrombin determination. It is felt that this discrepancy is due to the great plasma dilution which decreases the action of the foreign protein, or that the time allotted to the prothrombin conversion by its factors is not sufficient for a complete conversion. In fact, in the different experiments, the yield of prothrombin is the same but the incubation time in experiment No. 6 (Fig. 2) is 5½ minutes compared to 2½ minutes for normal plasma.

The coagulation studies seven months after splenectomy did not reveal any abnormality, and the Quick prothrombin time was 14″.2/13″.4. The plasma showed no cloudiness in the presence of distilled water. At that time, paper electrophoresis showed a disappearance of the abnormal protein that gave way to a gamma globulin fraction of normal appearance. Follow-up studies 11 months after splenectomy revealed the following coagulogram: very slight plasma cloudiness in the presence of distilled water, Quick prothrombin time 17.9/13.8, prothrombin 14/12.1, proconvertin 19.8/13.6 and proaccelerin 19.7/11.9, thus indicating a return of the macroglobulins.

From the pathological viewpoint, the present observation falls in line with the large proportion of previously reported cases in which an abnormal proliferation of lymphoid-like cells was described. This proliferation was here interpreted as a variant of malignant lymphoma, apparently primary to the spleen and spreading to the lymph nodes and liver. Microscopically, the pattern was more reminiscent of chronic lymphatic leukæmia than of lymphosarcoma. No increase in mast cells was noted. Transition forms of lymphoid-type cells to plasma cells, a feature of sternal puncture smears, could be detected only in the liver, and not in the spleen where cellular multiplication appeared much more active. All in all, the process was essentially a lymphoreticular proliferation, with a slight tendency to formation of plasmoid cells.

SUMMARY

A case of macroglobulinæmia is described. Identification of macroglobulins was established by ultracentrifugation. Splenectomy in this case produced a temporary remission.

It is postulated that these macroglobulins act as an antiproconvertin and an antiproaccelerin. The reticulo-endothelial system and its lympho-

plasmocytic derivatives appear to be the main source of this foreign protein.

We should like to thank Dr. A. A. Cooperberg for reading the manuscript and also Dr. P. Frick for his comments.

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Case Reports

CALCIFIC ARTERIOSCLEROSIS OF INFANCY*

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THE RARE OCCURRENCE of vascular disease in infants of sufficient degree to cause death is of considerable interest to both clinician and pathologist. Some 65 cases of calcific arteriosclerosis in infancy have been reported in the literature since 1891, when Bryant and White[1] first drew attention to the disease.

Study and discussion of the subject is principally to be found in the sporadic reports in the literature. The majority of standard textbooks of pædiatrics and pathology merely mention its existence. Most of the cases so far reported, including the one presented here, appear to belong to a group whose pathological features are more or less distinctive. These consist of the deposition of amorphous calcium adjacent to the internal elastic lamina of medium-sized and small arteries accompanied by hyperplasia of the intimal fibroblastic tissue and consequent narrowing or complete occlusion of the lumen. The coronary, splenic and renal arteries are most often involved, although lesions have been described at many other sites. Involvement of the coronary arteries has commonly led to infarction of the myocardium, which is not infrequently quoted as the immediate cause of death.

Clinically, the age range is between birth and two years. The symptoms are often of rather sudden onset and are those of acute congestive heart failure in a previously well infant. A few cases reported appear to have run a more protracted course, lasting a few weeks or months. The diagnosis is rarely, if ever, made ante mortem.

The infant, aged nine months, was well until 36 hours before death. At this time, he developed mild fever and anorexia. He was not considered seriously ill and received an intramuscular injection of penicillin. During the following hours, he did not improve and was finally admitted to hospital.

On admission, the child's temperature was 102.6° F., pulse 154, respirations 70. Respiratory distress was marked and he appeared to be gasping for air by a series of grunting respirations in which all the muscles of respiration were brought into play. He was immediately placed under continuous oxygen therapy and given further intramuscular injections of penicillin, but died two hours after admission.

Enquiry into his past history revealed nothing except a mild attack of diarrhœa at the age of six months, lasting only a few days. He was a normal, full-term baby with an unremarkable ante-natal and post-natal course and had progressed well until the onset of his terminal illness. No history of excessive vitamin D or calcium intake was elicited.

AUTOPSY FINDINGS

The infant was a well-developed, well-nourished, nine-months' old male child. Approximately 15 c.c. of straw-coloured fluid was present in the pericardial sac. The visceral and parietal pericardia were smooth and glistening. The heart was of normal weight but the chambers,

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especially that of the left ventricle, were somewhat dilated. No ante-mortem mural thrombus was present. The myocardium was brownish-red and somewhat mottled, but otherwise did not attract attention.

Both pleural cavities contained 100 c.c. of clear, yellowish fluid. The lungs were heavy and boggy in consistency. The upper lobes were pink, the lower deep purplish-red. The cut surfaces were moist and exuded considerable frothy, blood-stained fluid. Pus could be extruded from the bronchi of the lower lobes. The mediastinal structures appeared normal.

The abdominal cavity was lined by smooth, glistening peritoneum, and a small amount of clear, yellowish fluid was present. All organs were in their normal position and, except for congestion of both liver and spleen, presented a normal gross appearance.

The gross autopsy diagnosis was acute pneumonia involving the lower lobes of both lungs.

MICROSCOPIC FINDINGS

Heart.—The wall of the left ventricle had an extensive area of complete infarction of muscle tissue with loss of nuclei and striations and marked eosinophilia of the fibres (Fig. 1). This was associated with neutrophil infiltration. Around the margins of these necrotic areas of muscle, there was early reabsorption with the deposition of a fine network of collagen and accumulation of mononuclear macrophages, some of which were filled with brown granular pigment. Much of the infarcted muscle appeared to be in the subendocardial zones. Elsewhere, the muscle fibres showed some separation due to œdema and there were occasional collections of cells, principally lymphocytes and neutrophils adjacent to blood vessels. The pericardium also showed a slight diffuse infiltration of cells of the mononuclear type. The intramyocardial vessels were not remarkable, but the larger branches of the coronary arteries lying in the pericardium showed calcification of the internal elastic lamina with marked intimal hyperplasia resulting in partial or complete luminal obliteration (Fig. 2). The endocardium was normal. The right ventricle showed numerous focal infiltrations with mononuclear type of inflammatory cells, but no areas of muscle necrosis were noted. The endocardium appeared normal.

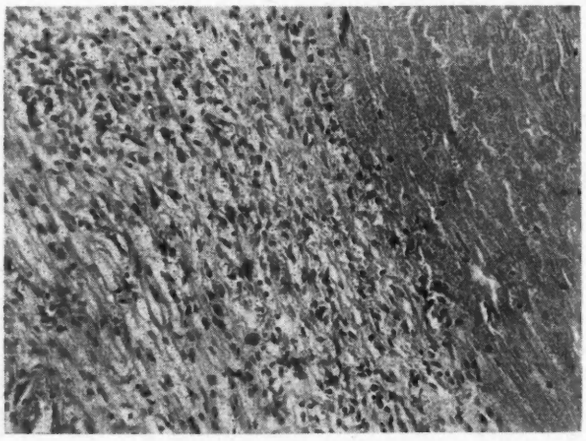

Fig. 1.—Extensive necrosis of myocardium with evidence of early resorption of the necrotic muscle and deposition of collagen. H & E × 125.

Lung.—Sections of the lower lobes of both lungs revealed extensive consolidation. Numerous alveoli and bronchi were completely filled with acute inflammatory exudate consisting of neutrophilic leukocytes and fibrin. Associated with this leukocytic infiltration was marked congestion of the alveolar walls. Practically no air-containing lung was evident.

Liver.—The liver showed an essentially normal architecture but there were a few focal areas of necrosis in which there was degeneration of parenchymal cells and accumulation of acute inflammatory cells. Centrilobular congestion was apparent throughout. The intrahepatic biliary system appeared normal.

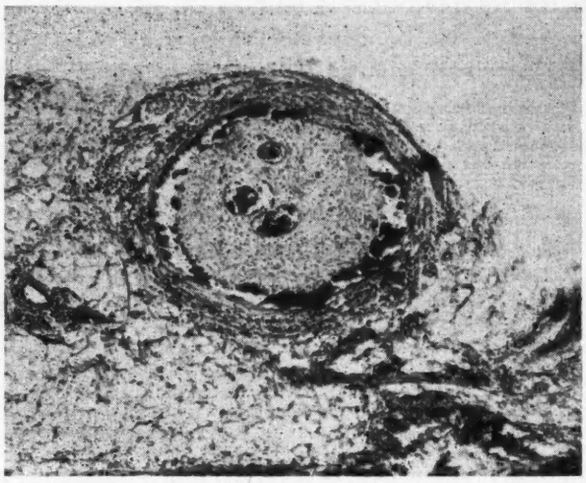

Fig. 2.—Transverse section of coronary artery showing extensive calcification and intimal fibrosis. H & E × 110.

Spleen.—There was considerable congestion of the red pulp, but the microscopic architecture was essentially normal.

Pancreas.—Acini, islet structures and ducts appeared normal. However, the portions of the splenic artery seen adjacent to the pancreas showed changes of calcification and intimal fibrosis similar to those observed in the coronary arteries. There was partial, or almost complete, obliteration of the lumen in many of the sections studied.

Adrenals.—Sections of cortex and medulla were normal. There was some evidence of a focal hyperplasia of the cortex with the formation of rounded nodules. However, just outside the capsule of the adrenal, numerous small arteries showed extensive and severe arteriosclerotic changes, several of which showed complete obliteration of the lumen.

Kidney.—Glomeruli were normally formed and presented no histological changes. The tubules, both convoluted and collecting, appeared to be essentially normal. The interstitial tissues were also normal, although there was a mild degree of congestion. None of the small lobular or arcuate vessels of the kidney appeared to be abnormal. However, in the peri-pelvic tissues of the kidney, there was a fairly large branch of the renal artery showing early changes in the intima with partial calcification of the internal elastic lamina and thickening of the intima with fibrosis and deposition of calcium.

Other organs.—Normal histological structure.

The vascular change.—The most marked vascular changes involved the branches of the coronary arteries, the branches of the renal artery, peri-adrenal arteries and the splenic artery. The principal changes appeared to consist of calcification adjacent to the internal elastic lamina associated with a marked degree of intimal fibrosis and production of loose connective tissue which partially or completely filled the lumen of the vessel (Fig. 3). Often found in this connective tissue were scattered small groups of mononuclear cells. Calcium was deposited principally at the junction of the intima and media, where it often formed a solid ring. Extension into the media and into the intimal fibrous tissue was often observed. In some of the vessels in which the lumen had been completely obliterated, there was evidence of recanalization by two or three smaller endothelial-lined channels. In the adventitia of most vessels, there were collections of mononuclear cells and lymphocytes. The earliest change appeared in the renal artery

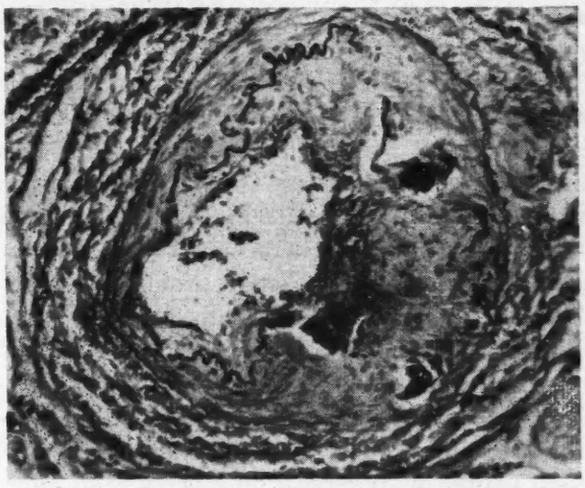

Fig. 3.—Transverse section of peri-adrenal artery showing extensive deposition of calcium, fragmentation of the internal elastic lamina and intimal fibrosis. Elastic tissue stain × 125.

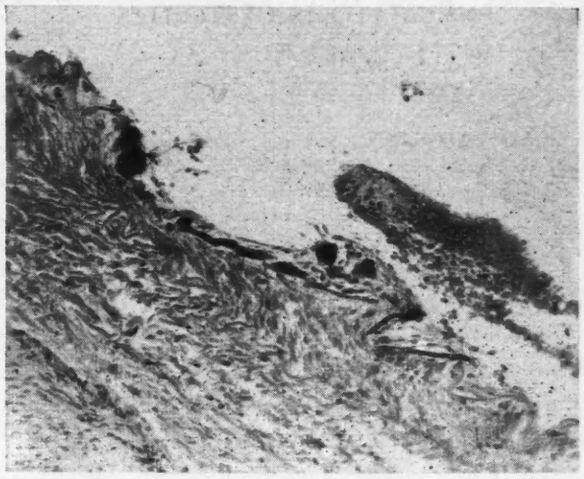

Fig. 4.—Early lesion in branch of renal artery. H & E × 150.

(Fig. 4), and here consisted of apparent disruption of the internal elastic lamina with laying down of a few intimal collagen fibres resulting in the formation of a slightly raised plaque containing granular masses of calcium.

On each aspect of the disrupted internal elastic lamina amorphous calcium had been deposited, extending somewhat into both intima and media. The degree of calcification appeared to vary. In some there was an extremely extensive thickness of calcium; in others, only scattered accumulations of calcium were seen. Most of the change was concentric and involved the entire intimal surface. However, in many locations, an eccentric deposition of calcium and intimal fibrosis was seen. Special elastic tissue stains clearly demonstrated these changes. Only the medium-sized and small muscular arteries appeared to be affected. Arterioles as well as larger vessels appeared to be free of any disease. There was very little inflammatory reaction in the vascular wall.

Final pathological diagnoses.—(1) Calcific arteriosclerosis of infancy. (2) Myocardial infarction. (3) Congestive heart failure. (4) Bilateral acute bronchopneumonia. (5) Pleural and pericardial effusions.

COMMENT

The etiology and pathogenesis of calcific arteriosclerosis in infancy have, as yet, not been established, although a number of hypotheses have received attention. These have been exhaustively reviewed by Stryker[2] in 1946 and will be only briefly summarized here.

The similarity between the degree and location of the calcium deposition in arteriosclerosis of infancy and metatastic calcification occurring in either hyperparathyroidism or excessive vitamin D intake has led some to postulate that these latter factors may be of significance in the production of this disease.[3, 4] However, such a relationship has been established in only a few cases in which exhaustive investigation has been carried out. In some instances, definite renal lesions have been present, leading to the view that an altered Ca/P ratio on a renal basis may be an important factor in the production of metastatic calcification of the type seen in these infants.[3, 5] Unfortunately, in few cases can claim be laid to sufficiently complete blood chemical examination to establish or rule out such a conjecture. In addition, several cases, including the one presented here, fail to show any form of renal disease with the exception of the vascular change.

The presence of destructive bone lesions has been reported in only one case,[5] although lack of extensive examination is evident in most cases. Thus the possibility that vascular calcification is secondary to some form of bone destruction such as is sometimes seen in adults cannot be ruled out. Allergy,[6] toxic factors,[7] infection and inherent elastic tissue weakness have been suggested, but there is little evidence to support the contention that these factors are operative in the majority of reported cases.

The apparent failure so far to elucidate the factors concerned in the development of calcific arteriosclerosis of infancy may be at least partly due to failure of recognition of the disease either clinically or on gross autopsy examination. Awareness of its existence by the clinician may lead to more frequent ante-mortem diagnoses and, consequently, more exhaustive clinical investigation, and by the pathologist, to more extensive examination of the kidneys, bone and parathyroid glands.

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PNEUMATOSIS CYSTOIDES INTESTINALIS*
(INTESTINAL AIR CYSTS)

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PNEUMATOSIS CYSTOIDES INTESTINALIS is an uncommon condition of the gastrointestinal tract, characterized by the presence of multiple, gas-filled, sessile or pedunculated cysts, principally confined to the serosa and subserosa, but occasionally occurring in the submucosa and sometimes in all three. Very occasionally, the urinary bladder or vagina is also involved.

Koss,[1] in an extensive review of the literature, could find only 213 authentic cases. Since then a further six or eight cases have been reported. Koss found the disease to be 3.5 times as common in males as in females, with a peak age distribution of 30 to 50 years in males and the sixth decade in females.

Two groups of cases can be distinguished. In the "primary" type the cysts are confined to the bowel wall, the disease being most commonly present in the cæcal area with the majority of the cysts in the submucosa. This type comprised 15.4% in Koss's series. Only nine cases involved the large bowel exclusive of the cæcum. The "secondary" type is accompanied by lesions in other parts of the gastrointestinal tract; 58% of Koss's 213 patients had a duodenal or gastric ulcer, often complicated by pyloric stenosis. The terminal ileum is involved in most of these cases, but any part of the bowel from the stomach to the rectum may be affected.

The gross pathology varies with the site of the cysts. If the disease is in the serosa or subserosa, many single or multiple clusters of cysts are seen which may involve all but the extraperitoneal surface of the bowel, the diameter of the cysts varying from a few millimetres to several centimetres. There may be a spread into the mesentery, and mesenteric lymph nodes may be involved. If the submucosa is mainly involved, only reddening may be apparent on the exterior, but palpation reveals a spongy, cushion-like consistency in the involved section. The cut surface in these cases has a honeycomb-like appearance.

The microscopical picture is one of multiple cysts lined by a single layer of epithelium, the cells of which may coalesce to form giant cells in the more chronic cases. These giant cells seem to increase in number with increasing degrees of surrounding fibrosis. There may be an acute or chronic inflammatory reaction around the cysts. The overlying mucosa is usually intact.

The presenting symptoms in the "secondary" type are usually those of the accompanying disease, but either type may show vomiting, abdominal distension, vague abdominal pains, constipation or diarrhœa, all arising from interference with transit of intestinal contents. In two recent cases,[2, 3] where the disease was confined to the lower colon, the passage of blood in the stools was a major complaint. An abdominal mass is rarely felt.

The chief complications are: (1) spontaneous pneumoperitoneum; (2) a tendency to a chronic prolonged course; (3) intestinal obstruction due to obliteration of the bowel lumen by submucous cysts; (4) volvulus or adhesion formation due to serous and subserous cysts; in some cases the cysts have disappeared spontaneously.

Recent papers[2, 5] have emphasized the possibility of the diagnosis being made radiologically during barium examination, an irregular multiple polyp-like narrowing of the lumen being seen with the whole bowel wall outlined by a translucent air-filled space.

The etiology is still undetermined. Most authors think that the cysts are dilated, gas-filled lymphatics, but the origin of the gas is in dispute. The presence of gas-forming bacilli can be shown in some cysts, but experimental efforts at reproduction of this state have failed. Koss[1] also points out that the pneumoperitoneum found in these cases is rarely, if ever, accompanied by peritonitis. That a mechanical type of "emphysema" originates from a break in the mucosa is an old theory and this mechanism may operate in those cases with local mucosal disease, but it is difficult to see how the air can migrate from the areas isolated between. The most likely theory is that the gas diffuses into blocked, stagnant lymphatics from the bowel lumen, this process being aided by some deficiency state in the mucosa.[3]

Pneumatosis confined to the sigmoid colon is very rare.[4] The following case from Queen Mary

*From the Queen Mary Veterans' Hospital.

Veterans' Hospital illustrates many of the above points.

A white man, age 58, was first seen at Queen Mary Veterans' Hospital in November 1951, with a diagnosis of arteriosclerotic heart disease. He suffered a coronary occlusion in 1944 and was repeatedly admitted to hospitals in Three Rivers for congestive heart failure. He was admitted to Queen Mary Veterans' Hospital in January 1953, for the same complaint plus involutional melancholia.

In August 1954, while convalescing, he complained of vague abdominal distress classed as indigestion but not relieved by food or alkalis. Intermittent constipation which then developed was relieved by enemas. On August 13, 1954, a barium study of the stomach and small bowel revealed no evidence of malignancy or ulceration of the œsophagus, stomach or small bowel.

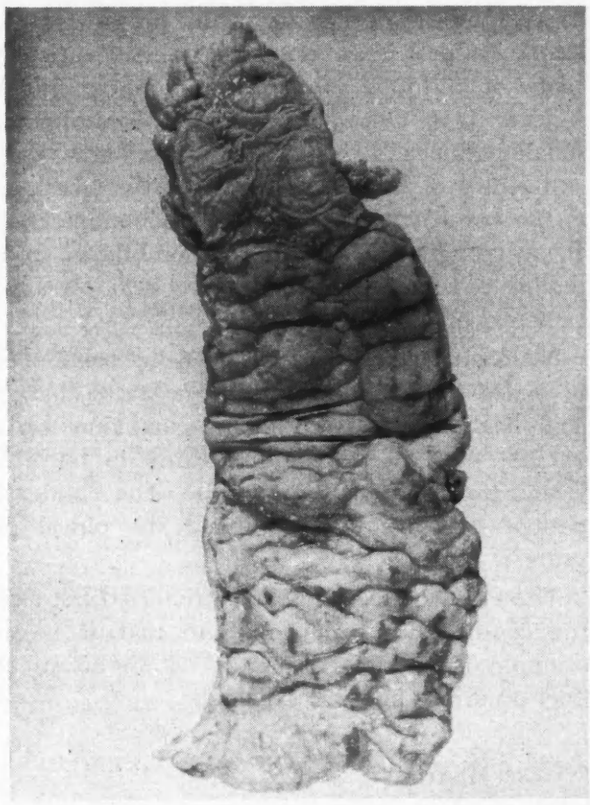

Fig. 1.—View of resected segment of sigmoid opened longitudinally. The polypoid effect in the mucosa is seen with more normal bowel at the top.

The indigestion and constipation continued. On October 18, 1954, a barium-enema examination was made. The rectosigmoid was long, redundant and looped. There were numerous large filling defects involving at least eight inches (20 cm.) of this loop. The disorganization of the mucosa and irregularity of the walls were in keeping with extensive polypoidal malignancy. The rectum and remaining portion of the colon were negative.

On October 25, 1954, sigmoidoscopy revealed curious polypoid masses starting at the five-inch level. These polyps had an œdematous character with small, well circumscribed, cyst-like structures streaked with blood.

A second barium-enema examination showed numerous rounded filling defects in the sigmoid loop measuring three or four cm. in their greatest diameter. The disease appeared to terminate more or less at the iliac portion

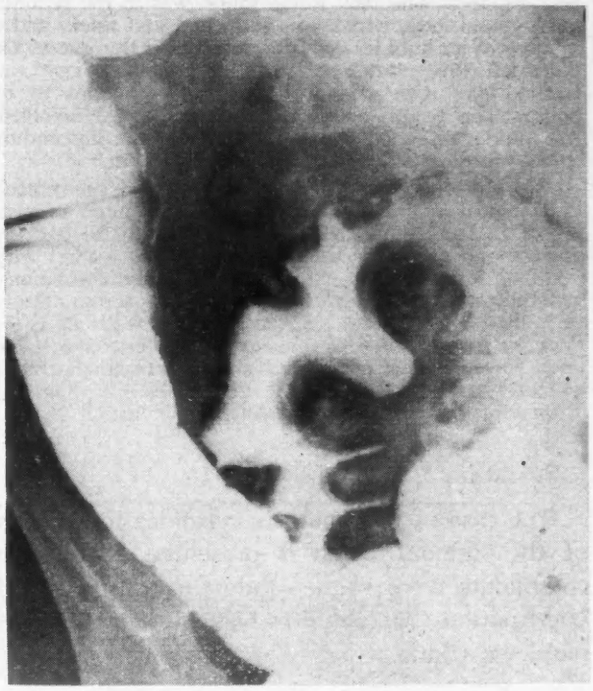

Fig. 2.—Involved bowel as seen by barium enema. The large polypoidal areas stand out, and the halo-like effect of the air in the sub-serosal space can be seen.

of the sigmoid area, and no other filling defects were seen throughout the large bowel. The pelvic sigmoid loop was redundant but did not appear to be adherent.

The findings suggested a polypoid type of tumour. Malignancy could not be ruled out.

Another sigmoidoscopic examination revealed a small sessile growth about 5 mm. in diameter on the anterior wall of the rectum about five inches from the anal orifice. The growth was flat, shiny and greyish-pink. There was another growth at nine inches, 1.5 cm. in diameter on a slightly narrower base, the surface irregular and greyish-white in colour, with no ulceration. A biopsy was taken from the larger growth. Sections showed small masses of connective tissue covered by intestinal mucosa. No characteristic signs of malignancy were seen. However, in the submucosa some fibrosis was noted with giant cells of the foreign-body type.

The patient's cardiac status was assessed as being adequate for surgery and on November 18 the abdomen

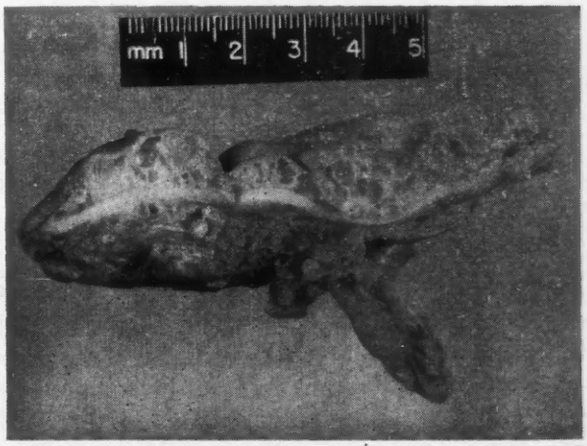

Fig. 3.—Transverse section of the sigmoid with the mucosa on top. The honeycomb effect of the multiple submucous cysts stands out, with less extensive involvement of the sub-serosa.

was explored. The only lesion found was in the redundant sigmoid loop, which was reddened and thick, and a number of air bubbles could be seen under the serosa. On palpation this portion of the bowel felt boggy and cushion-like, with several firmer areas thought to be polyps. The lymph nodes did not seem to be involved. An anterior resection was performed and the descending colon was anastomosed to the lower rectum.

The postoperative course was entirely uneventful. Pathological examination revealed a "specimen consisting of 28 cm. of sigmoid colon. For roughly 20 cm. the mucosa and especially the submucosa were seeded with cyst-like formations of various sizes. These formations, generally smaller, were also seen in the serosa. Study of microscopic sections showed that the walls of these cysts were constituted of thin layers of connective tissue lined by epithelium. In many areas the epithelial cells were replaced by foreign-body giant cells." A diagnosis of pneumatosis cystoides intestinalis was made.

SUMMARY

1. A case of pneumatosis cystoides intestinalis of the sigmoid colon is presented. The main complaints were vague—abdominal distress and constipation. An anterior resection of the sigmoid was done.

2. By hindsight, the characteristic x-ray picture and biopsy specimen containing giant cells but no actual cysts might have made a preoperative diagnosis possible.

3. A brief outline of the known factors relating to the condition is given.

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A RARE TYPE OF MECKEL'S DIVERTICULUM

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EMBRYOLOGY

IN THE DEVELOPMENT of the fetus the yolk sac communicates with the intestine by a large tube—the vitello-intestinal duct. By the 7 mm. stage the yolk sac normally loses its communication with the bowel and remains in the cord. The obliterative process begins at the umbilicus and extends to the bowel at about the 7th week of intrauterine life. Should the duct persist and remain patent, the bowel communicates directly with the skin at the umbilicus. Persistence of the remnant of the duct at the intestinal end leads to Meckel's diverticulum.

PATHOLOGY

A Meckel's diverticulum is found in 2% of subjects at autopsy. Its site is approximately 2 feet (60 cm.) from the ileo-cæcal valve on the antimesenteric border of the gut, and it has a diameter of ½-2 inches (1.25-5 cm.) The lining of the diverticulum may be ileal, gastric, duodenal, colonic or pancreatic and may give rise to symptoms appropriate to its lining; for example, if gastric or duodenal it may ulcerate, bleed or perforate as does a peptic ulcer, which indeed it is. Other possible complications are inflammation and intestinal obstruction as a result either of intussusception into the small intestine or of persistence of its communication by a vestigial band with the umbilicus, producing a volvulus or obstructing a loop of gut pulled over it.

Meckel's diverticulum is said to be commoner in males than in females. Gross states that if complications do arise they are commoner early in life; 45% of his patients came to hospital within the first two years of life. The youngest patient was five hours old and the oldest 14 years.

The following case history is reported because the condition is rather rare, in that it is an example of a completely patent vitello-intestinal duct occurring in an adult female.

CASE HISTORY

Miss L.H., aged 37 years, was seen in consultation complaining of a purulent discharge at her umbilicus. Previously she had had the same trouble one year before, and on and off for some years, though for how long she did not know. Her sister on being questioned remembered their mother's dressing her sister's navel as a child. The patient had noticed no intestinal contents in the discharge. Her bowels were regular; there was no urinary disturbance and she had never menstruated.

Some 10 years previously she was operated on for a right inguinal hernia which recurred within seven months. For some years she suffered from bronchial asthma, and vague right-sided abdominal pains.

She was a woman of average size and build for her age, with some hirsutism of the face. The significant abdominal findings were a purulent blood-stained discharge from her umbilicus, below which the skin was red, and deep to it for a distance of some 3 inches, a tender cord palpable in the midline which on pressure exuded pus at the umbilicus. In addition she had the largest recurrent right inguinal hernia I have ever seen

in a woman. Pelvic examination was not carried out. There were no other significant findings.

She was admitted to hospital for investigation and treatment at the beginning of August. The umbilicus was probed and a fine catheter inserted into the sinus through which 20 c.c. of 12.5% sodium iodide was injected. The radiograph showed a long tract extending downwards in the midline and then veering towards the right side of the pelvis but not communicating with the bowel. Cystography was then performed and this showed some deformity of the right lateral wall of the bladder due to the distended diverticulum. On these findings a provisional diagnosis of infected urachal cyst was made.

Operation was performed by the author (general anæsthesia given by Dr. P. W. Hopper). An incision encircling the umbilicus was made, with dissection of the umbilicus and tract in one piece; the tract was found to extend intraperitoneally. On opening the peritoneum a large Meckel's diverticulum (with a circumscribed thickening base) adherent to large bowel, was dissected free and found to have a short mesentery, presumably an extension of the ileal mesentery. This was ligated and the diverticulum excised with closure of the small intestine in two layers reinforced by omentum. The abdomen was closed without drainage.

Postoperatively Dicrysticin was given for six days and convalesence was uneventful whilst in hospital. She was discharged home on the tenth postoperative day, and whilst at home developed a small wound abscess which responded to treatment.

It was considered inadvisable to repair her hernia at the same time in view of her chest condition and the septic nature of her umbilical fistula. In the latter part of October her recurrent right inguinal hernia was repaired by her doctor and a specimen of tissue found in relation to the hernia sac was sent for section.

Pathological report (Dr. W. Stewart Alexander).—(1) From first operation: The specimen consists of a portion of tissue measuring approximately 9 cm. in length. Near one end of this tissue there is a skin surface showing a sinus tract leading into the underlying fat. This sinus tract is lined by fibrous tissue and at the other end of the specimen there is an intestinal diverticulum 3 cm. in length. This sinus tract opens directly into the intestinal lumen.

Microscopic examination.—Sections of the wall of the Meckel's diverticulum show a typical small intestinal mucosa. The wall of the Meckel's diverticulum and the surrounding tissue show an extensive chronic inflammatory infiltration, and there is a sinus tract present lined by granulation tissue resting on a background of dense fibrous connective tissue.

Diagnosis.—Meckel's diverticulum with sinus to umbilicus.

(2) *From second operation.*—The specimen consists of a firm mass of tissue which shows some drying and hardening of the tissue around the margins. This portion of tissue measures 7 x 4 x 2.5 cm. Multiple sections show a small duct-like structure along one margin; at one end of the specimen there is a large cystic cavity measuring 2 x 1.5 x 1 cm., and this cyst is filled with dark brown material. The remainder of the tissue is greyish-white and has a very firm fibrous consistency.

Microscopic examination.—Sections of the tissue submitted show what appear to be rather complex tumour of muscle and fibrous connective tissue. There also appears to be some incorporation of fibres within the substance of the tumour. In its central portion there is an irregular duct-like space, lined by full columnar epithelium of Müllerian type. This Müllerian epithelium is surrounded by fibro-muscular tissue in a more or less concentric fashion, but the main mass of the nodule is apparently more or less separate from this duct-like space. It would appear that the epithelial-lined space is of Müllerian origin, while the remainder represents a hamartoma of leiomyomatous type.

SUMMARY

A rare case of a complete vitello-intestinal fistula in an adult female is reported, together with a note on her recurrent inguinal hernia.

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Special Article

THE CANADIAN FOUNDATION FOR THE ADVANCEMENT OF PHARMACY AND ITS SERVICES

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THE OBJECTIVES and functions of the Canadian Foundation for the Advancement of Pharmacy are fairly adequately depicted by its name, with perhaps the necessary qualification that it is an assistance organization only and does not attempt to make policy for Canadian pharmacy. The Foundation had its beginnings in the closing year of World War II, when it became apparent that pharmacy in general, and pharmaceutical education in particular, were heading into a period of expansion for which neither was too well prepared. It must be admitted, too, that up to that point adequate channels of liaison had not been developed between the profession as organized at both provincial and dominion levels, and the pharmaceutical industry which had grown to such lusty proportions in Canada in the years immediately preceding and during the war.

Pharmacy has a difficult course to steer at best, some of the talents of a tight-rope artist being required to maintain a good balance between the rendering of a high standard of professional service, on the one hand, and maintaining, on the other, a retail source of supply for the many allied items which the community has come to expect of the drug store. In Europe, there was a concentration of population first and

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the evolution of the apothecary and chemist's shops was a slow one. In North America, where the supplying of a pharmacy service began almost simultaneously with the arrival of the first settlers, conditions have been quite different—a difference reflected, indeed, in our name "drug store". The scars of this pioneering phase of Canadian pharmacy are deep ones, and it is only in late years that conditions have become more favourable to efforts toward a refinement of practice. In these years the Foundation has played, and is playing, a very significant role.

Membership in the Canadian Foundation for the Advancement of Pharmacy is open to all who have interest, directly or indirectly, in the welfare of pharmacy. The organization was conceived, in the main, by a group of men who felt that the pharmaceutical industry, representing as it does a large and influential group concerned with the development and distribution of drugs, should display tangible interest in the problems of recruitment and training for the profession. At the same time, there was always the very definite view that members of the profession as individuals would welcome, and fall in line with, leadership in that direction. Happily, this has been amply borne out in the 10-year history of the Foundation. The reserve fund was built up in the first two or three years through liberal contributions by firms and individuals representing many diversified interests, and the directors have adhered closely to the policy of keeping this fund intact while endeavouring to raise each year sufficient funds for maintaining the programme of activities. With each passing year the number of contributions from practising pharmacists has continued to rise, until moneys from this source now represent a considerable proportion of the annual revenue. This indicates wide acceptance by the profession, both of the idea of advancing the standards of practice and of the manner in which the Foundation is functioning. The directorate is representative of all phases of pharmaceutical endeavour and the attendance at the quarterly meetings has continued to reflect the keenness of the interest of these many busy men.

The basic programme of the Canadian Foundation for the Advancement of Pharmacy may be said to be assistance to pharmaceutical education, since it embraces both aid to students and grants to provide continuing education for pharmacists in practice. Apart from the standing committees required for financing and management, the two principal committees are the Committee on Pharmaceutical Education and Research and the Committee on Extension Services.

Pharmaceutical education in Canada has indeed progressed rapidly during the years the Foundation has been functioning. As the war drew to a close, there were in this country two independent colleges of pharmacy, both with university affiliations, and five universities in which facilities for pharmaceutical instruction were set up as faculties, schools or departments. At the present time, only one independent college remains, serving the Maritime provinces; in all other provinces pharmacy has achieved university faculty or school status. In keeping with the attainment of this increased stature, the bachelor of science degree in pharmacy has now come to be the minimum prerequisite to licensure in pharmacy; only one institution still offers a diploma course as well as the degree course in pharmacy. Instructional staffs have grown from a small nucleus at the end of the war to the point where a well-rounded curriculum can now be offered. The funds provided by the Foundation and the inspiration derived from its support have been important contributing factors in this development.

Inasmuch as the majority of post-war students were veterans receiving D.V.A. assistance, the Committee on Pharmaceutical Education and Research devoted its attention, in the first instance, to problems connected with the providing of instructional staff adequate to meet the need of greatly expanded enrolments. Teaching fellowships were set up in several institutions to provide temporary relief. Young men were encouraged to make pharmaceutical education their career through the provision of graduate study fellowships to assist them with their advanced training. Almost to a man, those who have entered the teaching ranks in pharmacy since the war have received generous postgraduate fellowships, and the majority now hold the Ph.D. degree or are in the final stages of their graduate programmes.

As the proportion of D.V.A.-assisted students dropped, the Foundation stepped up its assistance programme to undergraduate students. Scholarships and other awards have been made available to the various colleges on a basis proportionate to the enrolment. It was announced recently, also, that starting in 1956 this type of aid will be supplemented by generous entrance bursaries. Students who are in their final two years of training may apply to the Foundation for interest-free loans to assist them in completing their qualification without the necessity of interrupting study for a year to earn sufficient funds. Evidence of the appreciation of this type of aid is seen from the extensive use of this fund and the fact that, in the 10-year period, not one such loan has had to be written off. Similar loans, and in many cases grants, are now being made available to pharmacy graduates who elect a measure of postgraduate training as further preparation for work in hospital or industrial pharmacy.

Other benefits, enabling them to provide a higher standard of instruction, are accruing to the colleges of pharmacy as a result of the Foundation's activities. The Canadian Con-

ference of Pharmaceutical Faculties has received financial assistance for the holding of its annual meetings and teachers' conferences, and the publication of its Bulletin is made possible, to a large extent, by a Foundation grant. Each year the Foundation makes a contribution to assist younger staff members to attend annual seminars sponsored by the American Council of Pharmaceutical Education. The fraternization and exchange of opinion that is resulting are important factors in the development of the present pharmacy curriculum.

Recognizing that the promotion and development of continuation studies for the pharmacist in practice is becoming increasingly important, as it is in the other health professions, the directors of the Foundation have given the Committee on Extension Services a relatively free hand. The colleges of pharmacy are accepting, as part of their responsibility, the conducting of refresher courses and other extension services. In this they work closely with the provincial pharmaceutical associations and it is through these bodies that the Foundation channels its funds. Appreciation of these services is believed to be no small factor in the increasing support of the Foundation by retail pharmacists.

Pharmacy, in common with the other professions today, is becoming increasingly conscious of public relations. The Canadian Pharmaceutical Association and its affiliated provincial bodies are developing programmes of public and inter-professional relations and are finding the Foundation a willing collaborator. One very important aspect of public relations of particular interest to the Foundation is the matter of recruitment for the profession. Under its direct auspices a vocational guidance filmstrip, with supplementary literature, has been produced and has been made available to provincial associations, departments of education, and directly to many high schools. This initial effort has been well received and a further expansion of it is now under consideration.

The development and distribution of drugs, as seen today, is a lively, progressive enterprise. The whole process, from the inception of the initial research up to the time the final product is placed in the hands of the physician or the patient, is one which demands a great deal of specific knowledge and a constantly increasing amount of special training. The young people graduating from pharmacy colleges today are finding their way into all levels of this production and distribution framework.

The Canadian Foundation for the Advancement of Pharmacy is proud of the accomplishments of its assistance programme and is confident of growing support from the profession of pharmacy in the future.

Clinical and Laboratory Notes

VARIATIONS IN THE ABDUCTOR POLLICIS LONGUS TENDON

(A Study in 74 Arms)

A. C. WALSH, M.D., *Vancouver, B.C.*

THE ABDUCTOR POLLICIS longus tendon is an inconspicuous tendon, but important for two reasons—because it stabilizes the thumb in all the latter's numerous uses, and because it occasionally is involved in a painful and incapacitating lesion known as de Quervain's disease. This is a stenosing tenosynovitis whose treatment is usually surgical, hence the importance of the anatomy of this tendon.

The anatomy texts commonly in use describe the abductor pollicis longus tendon (occasionally two tendons) as inserting into the base of the first metacarpal, occasionally giving a slip to the trapezium and the origin of the abductor pollicis brevis.[1] At operation for de Quervain's disease, however, frequent variations from this description are reported by several authors.[2, 3] These "abnormalities" are so common as to lead one to believe them to be a possible cause.

To compare the incidence of these variations found at operation with those in the average population, this tendon was examined in 37 subjects (a total of 74 arms) in the anatomy department of Stanford University* in 1952. Since most of these arms had already been dissected by the students, there was room for some error due to artificial splitting of tendons, but only occasionally was the insertion in any doubt. The variation from the so-called "normal" was so striking as to make any error insignificant. The results of this study are tabulated in Table I and summarized in Table II.

If we take the textbook description of metacarpal insertion only as "normal," there were only 15 "normal" insertions (20%). If we add those tendons that insert into the thenar muscles as well, but not into the trapezium (they have the same function of abducting the thumb metacarpal), the figure is 34 (46%). In forty cases (54%) there was an insertion into the trapezium. Furthermore, 42 tendons (57%) were split and would show as separate tendons at operation.

These findings give one a more accurate idea of what to expect at operation. They are compared in Table III with findings of other investigators. The insertion into other areas besides

*I wish to acknowledge the co-operation of Dr. Wm. Greulich, Professor of Anatomy at Stanford University, in allowing this study to be made.

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TABLE I.

VARIATIONS IN THE INSERTION OF THE ABDUCTOR POLLICIS LONGUS IN 37 CADAVERS (74 ARMS).

Subject No.	*Tendon into metacarpal only*		*Inserting into thenar fascia as well*		*Inserting into trapezium as well*		*Long separate tendon*		*Main tendon to metacarpal split*	
	Right	*Left*	*Right*	*Left*	*Right*	*Left*	*Right*	*Left*	*Right*	*Left*
1		+			+		+			+
2				+	+			+	+	+
3	+	+								+
4					+	+	+	+	+	
5	+	+								
6			+	+			+	+		
7					+	+	+	+	+	+
8					+	+	+	+		+
9					+	+	+	+		
10		+			+		+			+
11		+	+							
12					+	+				
13					+	+				
14	+			+						
15					+	+				
16			+	+						
17	+	+								
18			+	+						
19			+	+			+	+		
20					+	+				+
21	+			+*		+		+		
22			+	+						
23					+	+				
24					+	+	+	+		
25			+	+						
26	+			+*		+		+	+	
27					+	+				
28					+	+				
29		+			+				+	
30					+	+				
31	+					+		+		
32		+			+		+			
33					+	+	+	+		
34			+			+	+	+		+
35			+	+			+	+		
36					+	+	+	+		
37			+			+				
74	7	8	10	11	20	20	14	15	5	8
Arms	I	II	III	IV	V	VI	VII	VIII	IX	X

*These insert into the thenar fascia as well as into the trapezium.

the metacarpal may be just a continuous spread of one tendon or it may be by separate tendon. It is only those with a separate tendon which will show at operation. In the present series 57% had this separate tendon. This is very close to the operative findings in Bunnell's[2] series. Of these separate tendons 18% were also inserted into the metacarpal. The variations found at operation are surprising when compared with the standard anatomy text description, but are quite similar to variations recorded here by various investigators. It is interesting to note that this tendon in most primates (chimpanzee, gorilla, and gibbon) is divided, one part inserting into the trapezium and one into the metacarpal (Bunnell[2]).

TABLE II.

SUMMARY OF VARIATIONS IN THE ABDUCTOR POLLICIS LONGUS TENDON IN 74 DISSECTED ARMS

Into metacarpal alone (I and II)	15	20%
Into metacarpal and thenar fascia, not into trapezium	19	26%
Total "normal"	34	46%
Into trapezium as well—"abnormal"	40	54%
Cases with extra tendon (VII and VIII)	29	39%
Main tendon to metacarpal divided	13	18%
Incidence of division of abductor pollicis longus tendon (VII, VIII, IX, X) (in Table I)	42	57%

The insertion may vary in three main ways. There may be: (1) a single tendon inserting into the lateral side of the base of the first metacarpal; (2) a wide linear insertion ¾ inch long covering the thenar fascia, metacarpal base and trapezium; (3) a separate attachment to the trapezium and the thenar muscle fascia. The metacarpal attachment is always present and is the primary insertion; the other two are more often present than not. Jones[5] states that the usual insertion is into the metacarpal and the

TABLE III.

VARIATIONS IN THE ABDUCTOR POLLICIS LONGUS TENDON AS REPORTED BY VARIOUS AUTHORS.

		Dissection		Operation
Author	*No. of arms*	*Dual insertion*	*Long separate tendon*	*Aberrant tendon*
Loomis[3]	100	usual		19 cases %?
Parsons[8]	127	89.8%		
Wood[7]	72	68.0%		
Wagenseil	64	69.0%		
Lacey[4]	38	82.0%		75%
Bunnell[2]	22			55%
Present series	74	65.0%	57%	

trapezium, with a not infrequent slip to the abductor pollicis brevis.

The divisions in the tendon vary from mere longitudinal lines on the tendon, which were numerous and indicated potential splits, to complete splits forming separate tendons. It was not uncommon to find three completely separate tendons. The divisions tabulated here extended at least one inch from the insertion and several extended proximally into the muscle belly itself.

The variations in the sheath are not as common but are important because the stenosed tendon may be in a separate sheath. They could not be studied in the present series, as the arms had already been dissected. They have been described by Loomis.[3]

Having established that the abductor pollicis longus tendon is not as simple a tendon as usually described, what is the significance of its variations? The main insertion into the metacarpal, of course, abducts the thumb and also abducts the hand, but as Jones[5] points out: "it also possesses two very deceptive actions. It can pull the metacarpal bone of the thumb and the trapezium in a palmar direction, and this action when combined with contraction of the abductor pollicis may produce a movement which simulates true opposition of the thumb. It is possible that in some cases, in which most perfect opposition of the thumb is produced in cases of median nerve paralysis, the slip which often unites the extensor ossis metacarpi (abductor pollicis longus) to the abductor pollicis brevis assists in producing the deceptive action. Again, in the absence through paralysis of the two flexors of the wrist joint, the extensor ossis metacarpi (abductor pollicis longus) may flex the hand on the wrist with considerable force."

The mechanics involved in these variations may have something to do with the causation of de Quervain's disease. The tendon attached to the trapezium has a much shorter range of motion which might lead to a shearing strain or friction of the tendons with resultant œdema and swelling leading to tightness within the sheath. The actions of the different insertions are partially different—the trapezium insertion moves the wrist only, the metacarpal insertion the metacarpal chiefly—yet they have the same muscle motor power. This could conceivably lead to muscle strain when heavy demands are made on the muscle in certain movements mainly requiring the use of one component. In cases where the insertion is over a relatively wide area, the distal end of the tendon is expanded, and extreme radial deviation of the wrist would force this part of the tendon into the mouth of the fibrous sheath over the radius. If this were repeated often enough, strain, œdema and stenosis could develop.

The realization that these variations are usual is important, since the accessory tendons may be the ones affected by the disease. These may not be treated at operation and the symptoms may persist, especially as the separate tendons may have separate sheaths as described by Loomis.[3] The insertion of each tendon can be judged at operation by pulling on the tendon—those to the metacarpal and thenar muscles move the thumb metacarpal while the others do not, moving the wrist only. Extra tendons can be excised as recommended by Bunnell[2] if present in a case of de Quervain's disease, since they are dispensable and maybe a causal factor, although Loomis[3] in 19 cases of extra tendons has merely freed them, with no recurrence of symptoms in any case.

SUMMARY

Seventy-four abductor pollicis longus tendons were studied in the dissecting room and remarkable variations found from the usual anatomical textbook description. The practical applications of these findings are discussed, especially in relation to de Quervain's disease, and as regards retention of power of opposition in the thumb despite median nerve paralysis.

CONCLUSIONS

The usual anatomical description of the abductor pollicis longus tendon is inaccurate and should be changed. The knowledge of the possible and frequent variations of this tendon should help to explain conditions otherwise obscure and to increase the number of successful results from operating on this tendon, particularly in de Quervain's disease.

The few figures available from operative findings lead one to believe that there is no significant statistical connection between the different variations in the tendon and de Quervain's disease.

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Editorials

ENDOMYOCARDIAL FIBROELASTOSIS

Despite the major advances that have been made in cardiac diagnosis during the past 20 years, certain cardiac anomalies have persistently eluded classification. One of these is a syndrome found in infants dying a few months after birth with unclassifiable congenital heart disease, and has at necropsy been designated "fetal endocarditis". Included also are a group of diseases in middle-aged or older adults with congestive heart failure, in whom a clinical diagnosis of coronary disease has been made, but in whom at autopsy no evidence of such disease could be found. These have been designated "idiopathic cardiac hypertrophy".

During the past five years, however, there has been a great deal of clinico-pathological investigation of this problem, which has had the effect of bringing together these seemingly diverse entities into a single group, although an etiologically satisfactory explanation is not yet available. Various workers have designated this group as "endocardial sclerosis or dysplasia", "subendocardial sclerosis or fibrosis" and "endomyocardial fibrosis or fibroelastosis", the terminology apparently being dependent on the author's concept of the basic pathological process, which is far from being uniform or clearly defined.

In 1949, Craig[1] described necropsy findings in 43 cases of congenital heart disease in which the outstanding features were thickening of the endocardium of the ventricular wall and a similar thickening and malformation of the valves. These cases were of the type previously described as "fetal endocarditis", but Craig could find no evidence to indicate a local inflammatory process, and considered that these lesions were due to abnormalities of intrauterine development resulting from anoxæmia.

Since Craig's original report, new cases have been added to the literature by Prior and Wyatt,[2] Collier and Rosahn,[3] Edmonds and Seelye,[4] and others.[5-9] Cases have also appeared in the reports of the Weekly Clinicopathological Exercises of the Massachusetts General Hospital,[10, 11] and Eyler and others[12] have recently described the radiological features. While the reports differ in detail, certain basic similarities permit the evolution of a rather uniform concept of this syndrome.

In the first place, endomyocardial fibroelastosis is not an excessively rare condition, as the bibliography will indicate. The impression of rarity has resulted because cases were not sought out and were therefore missed, or were misinterpreted because no frame of reference existed.

Secondly, the etiology is not completely understood. Despite the fact that both Craig[1] and Johnson[6] suggested anoxæmia as the underlying cause, cases have been reported in which this factor could be ruled out.

The disease is not limited to a restricted age group. The age distribution in reported cases has varied from newborn infants to patients in their seventies. Halliday,[8] however, divides his cases into three major groups. The first group, usually infants, dies suddenly before cardiac disease is suspected, or after a short steadily downhill course. The second is characterized by an initial attack of congestive heart failure in infancy, and rapidly responds to good medical management for months or years. The third group carries the disease into early or late adult life, and, as indicated above, a very few may live a relatively normal life for a prolonged period.

Anatomically, endomyocardial fibroelastosis begins as a patchy subendocardial fibrosis with subsequent vascular and myocardial changes which lead to compensatory myocardial hypertrophy and eventual dilatation. At necropsy, there is generally cardiac enlargement, a patchy or diffuse grayish thickening and opacity of the endocardium with fibrosis and fusion of the valve leaflets which have a thick, rolled, free margin. There may also be patchy or diffuse myocardial fibrosis, or none at all; and finally there may be a greater or less degree of myo-

cardial hypertrophy and dilatation which in some cases may be enormous.

Although, in reported series, there has been some difference of opinion on this point, it now seems to be established that endomyocardial fibroelastosis may be associated with other congenital anomalies. These may be non-cardiovascular and include cryptorchidism and other genito-urinary abnormalities, skeletal deformities, mucoviscidosis and mental deficiencies. On the other hand, they may be cardiovascular and include hypoplasias, coarctations, septal defects and anomalies of the coronary tree.

Clinically, the symptomatology is that of congestive heart failure of obscure etiology, the prominent features being dyspnœa, cyanosis, œdema, anorexia and irritability. Radiologically, the only specific finding is a strikingly globular cardiac silhouette in infants, with prominence of the great vessels during episodes of failure. In adults the cardiac contour is not so startlingly globular, but there may be enlargement of individual chambers. The electrocardiographic features are non-specific, and usually throw little light on the diagnostic problem.

As indicated above, the treatment follows the usual lines of medical management, that is, digitalization, diuretics and sodium restriction. However, when valvular features are prominent or associated, careful investigation is required to determine whether cardiac surgery offers any hope of prolonging life, or in any way improving the patient's clinical status.

Despite the mass of knowledge that has been accumulated regarding this curious and interesting group of congenital anomalies, it still remains to be seen whether we have accomplished anything more than an improvement in classification, categorization and nomenclature.

S.J.S.

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CAN CORONARY HEART DISEASE BE PREDICTED OR PREVENTED?

According to Gofman, yes.[1] Coronary heart disease may strike without warning in persons thought to be in excellent health. Not infrequently, it follows a medical check-up which has failed to reveal any abnormality: medical history, physical examination, and electrocardiogram are non-contributory. Within a matter of days the same patient, at the height of his productive life, may die of a "coronary". To recognize this potential danger is of paramount importance.

Gofman claims predictability and, in some circumstances, preventability. There is a correlation between serum lipoproteins and coronary heart disease: Standard S_f0-12 and Standard S_f12-400 lipoproteins are elevated. "The designation 'S_f' refers to 'Svedbergs' of flotation, a unit which expresses the rate of migration (flotation) of lipoproteins in the analytical ultracentrifuge under defined conditions. The designation 'Standard' implies that certain physico-chemical corrections of the values have been quantitatively taken into account."[1] In the application of lipoprotein findings to clinical coronary heart disease, it is convenient to have a composite measure incorporating Standard S_f0-12 and Standard S_f12-400. The index now used is called the Alpha Value. Alpha Values offer an approach to the prediction of coronary disease in apparently healthy people.

In the age group 50 to 59 years, 100,000 men were studied. In the course of one year, 200 developed overt clinical coronary heart disease. Their alpha values were significant. Without knowing anything about the state of the arteries of these men, the relative risk of coronary heart disease could be calculated from their alpha values alone.

Age plays an important part in evaluating alpha values. Alpha values from birth onward (for five-year periods) are multiplied by age; the products are added together until the actual age group is reached to which the individual belongs. The sum of these accumulated products of alpha value x age, divided by 10, is called the accumulated coronary disease value, abbreviated to A.C.D. value. When a patient is studied for the first time at the age of, say, 45 years, his previous alpha values are unknown. A calculation of his alpha values back to birth is

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made. On the basis of this calculation, prognosis as to his risk of coronary heart disease is possible.

The validity of Gofman's results has been tested by attempting to predict solely from A.C.D. values what the coronary disease mortality rates should be in the United States for men and women at each age decade from 30 to 70 years of age. The values obtained were found to be in agreement with the mortality rates obtained from U.S. vital statistics.[2]

What hope does this offer to those who, in fact, have high alpha values? At the present time, definite proof of the value of lowering lipoproteins as a preventive measure in coronary disease is still lacking. Yet, if Gofman's findings are applicable in general, a reduction of lipoproteins in individuals with high values seems desirable. Some individuals respond to a reduction of dietary fat intake with a lowering of alpha values.[3] Restricted intake of animal fat is more effective than reduction of vegetable fat.[4] While helpful in some people, dietary fat restriction is without effect in others. Weight reduction in overweight persons results in a lowered lipoprotein level even after the acute weight loss period is over.[5, 6] Persons with elevated lipoprotein levels who are overweight will, therefore, benefit from a reduction of weight. When serum lipoprotein levels are elevated in hypothyroidism, the administration of thyroid reduces lipoproteins.

It has been shown that the adminstration of beta-sitosterol to human subjects on an unrestricted diet significantly lowers the serum lipoprotein levels.[7] Beta-sitosterol occurs in wheat-germ oil, cottonseed oil and tall oil. It is thought to interfere with the absorption of cholesterol from the alimentary tract. Cholesterol present in the gut is partly derived from ingested food and partly from bile. Cholesterol in the bile is in the same free state as that in the diet. There is no reason to believe that intestinal absorption differentiates between cholesterol molecules from these two sources.

The cholesterol content of the average American diet varies from 0.2 to 0.8 grams per day, while it is estimated that 0.5 to 1.5 grams of cholesterol are excreted daily by the liver. Cholesterol from the bile thus contributes a considerable proportion even when dietary cholesterol is restricted. The administration of beta-sitosterol may offer a means of reducing the amount of cholesterol entering the blood stream.

Lipoprotein analysis, restriction of fat in the diet, in particular animal fat, and other adjustments may hold the key to some measure of hope for the detection and prevention of potential coronary heart disease. This is an encouraging first step in a field in which the human, political, and economic loss has been so great.

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Editorial Comments

THE USES OF EPIDEMIOLOGY

In an exposition[1] of the uses of epidemiology, Dr. J. N. Morris of the Social Medicine Research Unit, Medical Research Council, London, presents some interesting data. For instance, the mortality rate in the 55-64 age group (which he euphemistically calls middle age) started to fall around the turn of the century but at a slightly faster rate in females than in males. In the 1920's the rate of decline in the males slackened still more, so that, for the past 30 to 35 years, there has been but little decline in mortality in the male, whereas in the female the decline has continued and has even been accelerated. Why the difference? If deaths charged to coronary heart disease and cancer of the respiratory system are excluded, the mortality from all other causes shows somewhat similar and marked declines in both sexes. The mortality rates (all causes) for the 55-64 age group in both males and females in Scandinavia are lower than in Scotland, England and Wales, Canada, United States, New Zealand and Australia. Why? Morris refers to the work of Dugald Baird, Professor of Obstetrics and Gynæcology in Aberdeen, showing how he studied his people in the hope of getting a better understanding of the problems they present. Social classes differed in physical stature, as well as in intelligence, education, housing, budget, nutrition, age of reproduction, proportion of prenuptial conceptions in first pregnancies, birth weights, breast feeding etc., and the differences were reflected in differences in the medical and public health problems. Morris finds that the stillbirth rate in England and Wales is 2½ times greater in elderly primiparæ than in others, the rate of neonatal mortality in multiple births nearly 10 times that in single births, and post-neonatal mortality in

infants of young mothers with relatively large families about three times that in others. In England and Wales, according to today's experience, about 12% of men 35 years of age will develop coronary heart disease within the next 30 years, and about 10% will develop gastric ulcer; about 4% will die of lung cancer; about 2½% will suffer severe injury in traffic accidents; about 2% will be admitted to a mental hospital. About one-third of men reaching 35 die before they reach 65, compared with just over 20% of women. The mortality from gastric ulcer rises regularly as the social class declines but mortality from duodenal ulcer does not show such a regular relationship. Why? General practitioners have about six times more first attacks of coronary heart disease than of cerebrovascular disease whereas, in other doctors, the ratio is less than 3 to 1. Why the difference? Children in Leeds, Leicester and Exeter ran three times the risk of losing their tonsils as compared with children in Manchester, Bradford and Gloucester. And so on. Dr. Morris points out that, by such comparisons and contrasts, epidemiology raises many fundamental questions and in doing so it exposes our ignorance, our false assumptions and ready self-deceptions. His illustrations support his plea for a wider use of epidemiological methods in medicine and public health.

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THE NATURAL DURATION OF LUNG CANCER

The wide variation in the degree of malignancy of lung cancer, as reflected by survival time after onset of symptoms, is now fairly well recognized. In 1942 Goldman[1] pointed out that most reported series of carcinoma of the lung mentioned some proportion in which the duration was two years or more. He reported 11 of his own cases with a range of duration between onset of symptoms and death from 28 months to 244 months. The patients were all males and were 40-70 years of age. In none of the 11 was there any treatment likely to influence materially the duration and in 5 of the 11 there was no treatment of any kind. The survival times in these five cases after onset of symptoms were 30, 75, 108, 120 and 151 months. Four of the five cancers were epidermoid but one was alveogenic; the alleged duration of the latter was 10 years. Goldman gave the full details of the 11 cases and thus added very materially to the knowledge of the natural history of some untreated lung cancer.

Bignall[2] has recently reported on 255 patients with untreated bronchial carcinoma, all but 8 of whom are known to have died. The full range of durations is not given, but half the patients were dead by the end of the 9th month and 61% by the end of the first year; 39% survived for more than a year and 14% for longer than two years. By dividing the 255 into sub-groups and comparing the median durations—the time by which half the patients were dead—together with the proportions surviving for one and two years, Bignall tried to evaluate various factors that might influence survival. In discussing the appraisal of the value of treatment, he says, "It is unlikely that small differences in the pattern of survival could be convincingly demonstrated as due to treatment, however large the number of patients and carefully balanced the known factors influencing survival". He finds the duration of life from the start of symptoms to be significantly related to the histological type and to the presence of metastases at diagnosis. It appeared to be related, too, though to a less extent, to the nature and duration of symptoms before diagnosis, and to the age of the patient; it was not materially influenced by sex or by the lobe in which the tumour occurred. The poorest prognosis was found in those who had had symptoms for four to five months before diagnosis, half of whom died in the next three months, whereas half of those with symptoms for a year or more before diagnosis lived for a further seven months and almost a third for another year.

While in both these series the cancers with long durations were mostly epidermoid in type, this was not invariably so; there was wide variation in survival times even in cancers of apparently the same histological type. The long duration of life in some patients with untreated lung cancer is not to be lost sight of in estimating a prognosis for an individual patient or in appraising the results of treatment.

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THE PROBLEM OF NOISE

The effect of noise on our daily life has recently been considered in many countries. Industry, insurance, compensation boards and the armed services have this problem under consideration in this present age of industrial development. Articles have appeared recently in the American, French and Swedish medical literature discussing this little-known hazard of modern life, and on page 713 of this issue Dr. Ireland of Toronto stresses its importance.

It would seem that the most important effect of noise is upon the ear itself, with modern industry and jet aircraft as the worst offenders. Many considerations enter into whether the

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effect is from the intensity alone, and it is generally accepted that pitch, spectrum composition and length of continuous exposure are of almost equal importance.

We do know that intense noise also has an effect on the neuro-vegetative and endocrine systems of man and experimentally in animals. It has been shown that certain animals exposed to a noise level of 160 to 180 decibels die. Tissue changes are certainly caused by certain ultrasonic components of intense noise. This has been used to destroy cancer cells and has also resulted in marked changes in normal tissues.

There are many ways of controlling the exposure of the human race to injurious sounds. It will be necessary for the medical profession to acquaint itself with these. Some attempt must be made at sound-dampening of noisy machinery. Suitable ear-wardens must be worn and periods of relief from continuous exposure arranged. Proper testing of hearing on employment and rechecks at intervals are most essential in assessment of these cases for compensation. The problem is very similar to that of silicosis in its earlier days, and must be faced.

THE TREATMENT OF DERMATITIS HERPETIFORMIS WITH DIAMINODIPHENYL SULPHONE

Dermatitis herpetiformis (affectionately known as "D.H.") is a chronic skin disease, the cause of which is unknown. The primary lesion is most often a vesicle. These vesicles are arranged in circinate or gyrate groups. The sites of predilection are the lumbosacral area, buttocks, outer thighs, flanks, axillæ and forearms, and the eruption is usually symmetrical. Pruritus is intense. Residual pigmentation is often found. Remissions and exacerbations are common, and topical therapy is of no avail.

Sulphapyridine administration is the treatment of choice, and many cases respond well to this drug. However, alternative drugs have been sought because not all cases respond, and because sulphapyridine may produce toxic effects on the renal and hæmatopoietic systems and may cause gastrointestinal irritation.

Within the last five years encouraging reports[1-7] have been published on the use of diaminodiphenyl sulphone (D.D.S.).* D.D.S. is given orally in doses up to 200 mg. daily (50 mg. q.6 h.). The average maintenance dose is from 50 to 100 mg. The earlier dosages used by Cornbleet[1] and Goldman[2] (up to 3,000 mg. daily) apparently are completely unnecessary. The drug must be given continuously as long as signs and symptoms persist. In many cases where sulphapyridine is ineffective or has to be stopped because of side-effects, D.D.S. is reported as usually being effective. Where sulphapyridine and D.D.S. are used alternately in the same case, it is the clinical impression that D.D.S. is more effective.

However, as is well known, the sulphones are a very toxic group of drugs, particularly affecting the liver, the kidneys and the hæmatopoietic system. Kruizinga and Hamminga[3] report one case of cyanosis in their 12 reported cases. Of 19 cases treated by Klevansky,[4] three patients developed cyanosis (one due to sulphæmoglobinæmia, two due to methæmoglobinæmia). There were six cases of normocytic anæmia and one of sulphæmoglobinæmia in 28 cases investigated by Morgan *et al.*[6] Finally, of 28 cases reported by Alexander,[7] 18 were cyanosed, seven severely (presumably due to methæmoglobinæmia); three developed normocytic anæmia and in one the blood urea level rose to 126 mg. %. In all, of 87 cases of dermatitis herpetiformis treated with D.D.S. and reported in enough detail to list complications, 23 were cyanosed, nine developed normocytic anæmia and one had an elevated blood urea.

All of the authors emphasize the necessity of seeing the patient frequently, and of having regular blood and urine examinations, liver function tests and blood urea determinations. Some cases have been kept on D.D.S. for considerable periods of time (up to two years) with no permanently adverse effects.

In the articles listed as references, there are recorded 110 patients with dermatitis herpetiformis treated by D.D.S. The total number of recorded cases of dermatitis herpetiformis treated by D.D.S. is probably not over 200. Therefore, it is the opinion of this writer that D.D.S. should not be used as the treatment of choice in dermatitis herpetiformis until further clinical and laboratory evidence is available to show that the drug is effective in long-term therapy, and that it produces no permanently adverse effects. It should be noted that leprosy, which is also extensively treated by D.D.S., is quite a different disease from dermatitis herpetiformis. The above-mentioned complications can be quite easily accepted in treating a lepromatous patient, but one wonders whether they are justifiable in dermatitis herpetiformis, which is non-fatal, often mild, and occasionally shows spontaneous remissions.

ROBERT JACKSON

*Trade names: Dapsone, Diasone, Promacetin.

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PUBLIC RELATIONS FORUM

Conducted by L. W. HOLMES,
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IV. WAIT BREEDS HATE

ACCORDING to recent public relations surveys reported by the American Medical Association patients complain more about waiting to see their doctors than about the fees they are charged. And the surveys suggest that too many doctors keep too many patients waiting too long. The reactions of waiting patients are reflected in these comments:

"I spend half my time waiting to see the doctor."

"It's easier to see the President than to see a doctor."

"I have appointments with the doctor; he doesn't seem to have any with me."

"My time is just as important as the doctor's."

The smart doctor will recognize this source of irritation and find ways to reduce waiting time to a minimum.

When the patient decides to see his doctor, he has made an important decision. He has decided to spend hard-earned money and valuable time, and he is anxious and disturbed about his health. If through their attitude and actions the doctor and his assistant indicate a lack of interest in the patient's time, comfort or feelings, they make him feel that the call is unimportant and his troubles insignificant. This arouses feelings of resentment and hostility toward the doctor and the medical profession.

The only efficient way to eliminate or, at least, reduce waiting time is through the appointment system. Moreover, the physician who works on an appointment schedule has better control of his time and can more efficiently organize his work. Appointments enable the doctor to plan his recreation, to spend more time with his family, to provide time for reading the mail, looking over the journals, writing up case notes, or for quick research on problems anticipated in patients to be seen on later appointments.

But probably most important, from a public relations point of view, the appointment system gives the physician a reputation for thoughtfulness and consideration of the convenience of his patients.

Appointments should be made realistically on the basis of the actual amount of time required for various patients and various procedures. If appointments are made by office personnel, the physician should see that patients are not scheduled too close together.

Of course there will be times when emergencies will cause the doctor to be absent from the office and upset the appointment system. But the wise physician will give patients next on the roster the choice of waiting, returning later the same day, or rescheduling for a later day. If he has an office assistant, this duty should be assigned to her; if not, he should do it himself before leaving the office.

And there will be occasions when examination or treatment takes longer than anticipated, requiring the next patient to wait past his appointed time. Here the office assistant can play a most important role explaining the delay, showing the waiting patient a little more attention, and indicating, both directly and indirectly, the doctor's regret and concern at the delay.

A group of doctors who have given some thought to the public relations implications as well as the sound business aspects of the appointment system, have listed these 11 scheduling suggestions:

1. Arrange office hours to fit community needs. Some doctors hold evening office hours two or three times a week for the convenience of working patients.
2. Schedule all appointments, using tact, patience and finesse, conveying the impression that you are trying to arrange a time when you can give the patient your complete attention.
3. Use an appointment book marked off in given time intervals. On the basis of your experience, allot given times for first visits, check-ups, and other procedures. Adjust your schedule to fit your practice.
4. Don't make conflicting appointments.
5. Don't overcrowd the schedule. Allow two or three vacancies during the day for catching up or as "breathers".
6. Schedule house calls realistically, at hours not conflicting with office hours.
7. Fit referred patients and patients without appointments into your schedule as best you can. Some doctors leave late afternoon and early evening appointments open for patients needing immediate attention.
8. If it is necessary to refuse an appointment, always explain why.
9. When an emergency takes you out of the office, explain the situation to waiting patients; give them the choice of waiting or of making a new appointment.
10. If it is necessary to cancel an appointment notify the patient and make a new appointment.
11. Always give patients a written or oral reminder of their appointments.

One final word on the irritation caused by waiting. This concerns the patient who is kept waiting at home—without explanation. All too frequently a family will telephone for a doctor and then wait, perhaps for hours, for his visit. If the doctor is delayed in making the house call, it is only common courtesy to let the patient, or his family, know. A brief telephone call by the doctor or his office assistant will ease unrest and uncertainty, and at the same time help the doctor preserve goodwill.

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In the office and in the home, wait *can* breed hate. Eliminate the delays that irritate, by sound and human business and public relations practices.

PR TIP

In conducting a public relations programme don't let the end overshadow the means. Achievement in public relations depends on day-to-day steps which must be taken to win friends for the medical profession. Often, in its attempts to go from here to there in a PR programme, a medical society will ignore the necessary intermediate steps and will lose valuable ground. This is pointed up by a recent report from a newspaperman.

This reporter, who regularly covers the medical "beat", approached a local medical society asking permission to write up its activities. The chairman of the society's public relations committee, stimulated by the reporter's interest, decided the time had come to hold a meeting with the local press to discuss the whole problem of medical-press relations—a highly commendable move. Invitations were sent out to the editor-in-chief, managing editor, city editor and other senior officers of the newspaper. The reporter, who indirectly promoted the meeting, was not invited.

The meeting progressed amicably, each side presented its views, general problems were discussed. Then the meeting adjourned. What came out of the meeting has not been reported. But, and this is the important thing, the reporter still doesn't have his story. Being ignored, he is unhappy and probably less inclined to work on the story. What it has gained by its meeting with the press, organized medicine has probably lost by antagonizing the reporter, and by by-passing an opportunity to obtain valuable publicity.

GENERAL PRACTICE

GENERAL PRACTITIONERS' DUTY AS MEDICAL TEACHERS

ROBERT F. PURTELL, M.D.

[At a Los Angeles conference, Dr. Purtell, a member of the American Academy of General Practice and an active participant in undergraduate teaching for many years, made some pertinent remarks on the duty of the general practitioner to teach undergraduates. Dr. Purtell's observations are reprinted below with the kind permission of the publishers' of GP, the organ of the American Academy of General Practice.]

IT IS MY FIRM conviction that any general practitioner within 60 miles of a medical school can and should offer himself as a teacher on its faculty.

One might ask, "Why teach?". There are long hours of preparation, rescheduling of work, and, of course, correcting papers. But the rewards are many. The stimulation of contact with the undergraduate, the inspiration to more intensive reading and, of course, the Oath of Hippocrates imposes an obligation upon all of us to teach.

For the past 23 years, it has been my privilege to participate actively in undergraduate teaching both in the Marquette University Medical School and the Milwaukee County Hospital. I have found that of all my rewards the gratitude of the student perhaps rates highest. It's always a great satisfaction to have a senior medical student come to me at the end of the semester and say, "Thanks for what you have taught me."

Too often nowadays, however, medical students are saying that the only professors they see or hear are specialists. Early in the undergraduate's medical training, he is implanted with the idea that to be a success he must be a specialist. This strong trend toward complete departmentalization has prevailed since the end of World War II. Within the medical school faculties, departments are now specializing within themselves, such as the department of medicine with its sub-departments of hæmatology, cardiology and endocrinology.

This trend, of course, has made it difficult to integrate the general practitioner in many medical school faculties. However, at a recent conference in Chicago on the care of the chronically ill, what appeared to be a brand-new idea, namely, treating the patient as a whole, was discussed at great length. For the general practitioner, this is not a new idea but an integral part of his daily practice. According to this new concept, the 1955 medical graduate must have a knowledge of the ancillary medical services available within his community, including the services of the dietitian, the physiotherapist and others in related fields.

The general practitioner would be the natural teacher in this new field of undergraduate medical training, and it is my firm belief that he should develop a definite programme to offer medical school faculties in the light of this new trend in undergraduate medical teaching. If we are to reverse the trend toward complete specialization in undergraduate medical students' thinking, it will require top-level planning between committees of the Academy of General Practice and the curriculum committees of medical school faculties.

ONTARIO SYMPOSIUM ON GENERAL PRACTICE

A VERY ENJOYABLE and very useful day was spent by 365 Ontario general practitioners in the Royal York Hotel, Toronto, on Thursday, September 22. The occasion was a one-day Symposium on Medical Practice arranged by the Ontario Chapter of the College of General Practice of Canada, with the assistance of the Lederle Laboratories Division of North American Cyanamid, Ltd.

The morning session was chaired by Dr. Sandford English, Fort Erie, Secretary of the Chapter, and consisted of three papers. The session opened with a paper by Dr. R. F. Farquharson, Professor of Medicine, University of Toronto, on pitfalls in diagnosis. Dr. Farquharson's talk was full of wise hints and tips on diagnosis. He mentioned, for example, the significance of anæmia as a sign of gastrointestinal malignant disease; the need to have the clinical pathologist or electrocardiologist take a second look at his findings if they do not agree with the clinical picture; the extreme weakness which anxiety alone can produce (seen at its worst in the cardiologist recovering from a coronary attack); and the danger of hurry in diagnosis.

Dr. Harry R. Newman, a Toronto graduate now practising urology in New Haven, Connecticut, discussed lesions of the prostate with emphasis on diagnostic points. He stressed the need for a really accurate history, for performing rectal examination with the patient's bladder empty and for always assessing prostate size with reference to the examiner's finger. He remarked that a prostate did not necessarily require removal just because it was enlarged. He often had intravenous urography done before catheterization, and condemned indiscriminate and casual catheterization.

The morning session closed with an inspiring gallop through the field of cardiovascular surgery by Dr. Eric Nanson, Professor of Surgery in the University of Saskatchewan, which put the present status of such surgery in focus and gave the general practitioner much help on selection of cases for referral to the surgeon.

The afternoon session was chaired by Dr. Peter Kinsey, Treasurer of the Ontario Chapter, and the high standard of the morning presentations continued. Dr. Weston Kelsey of Winston-Salem, North Carolina, discussed renal disease in children, starting with general diagnostic criteria, and going on to warn his listeners against labelling cases of orthostatic proteinuria as nephrosis. One of his cases had previously been in bed for seven years because of a diagnostic error of this sort. Dr. Kelsey stressed the misleading symptomatology of pyelonephritis in children (under three, the symptoms were fever, vomiting and diarrhœa; over three, fever, chills, abdominal pain and vomiting); dysuria was rare. Recurrence of pyelonephritis should lead to urography, as should presence of dribbling or of an abdominal mass, or persisting pyuria. Dr. Kelsey impressed on his audience the fact that 95% of cases of acute nephritis get better anyway, and that the 5% mortality can be reduced almost to zero by proper management, and control of the hypertension in the early days. Either reserpine alone (0.08-0.15 mg. per kg. per dose i.m.) or with Apresoline (0.1-0.15 mg. per kg. per dose) seemed to be the treatment of the future.

Dr. Kenneth T. MacFarlane of Montreal read a paper on the significance of bleeding late in pregnancy, describing hæmorrhage as the public enemy No. 1 in present-day obstetrics. He listed and discussed the causes of antepartum bleeding in the third trimester and of intrapartum bleeding.

The afternoon session closed with a memorable and remarkable talk on office procedures in proctology by Dr. Raymond J. Jackson from the Mayo Clinic.

Although this symposium was mainly meant for general practitioners, quite a number of specialists were noticed listening intently to the presentations. It is hoped to publish some or all of the papers at a later date in this Journal.

A luncheon was served to doctors and their wives, with Dr. Max Alexandroff, Chairman of the Chapter, in the chair and the Honourable MacKinnon Phillips, Minister of Health for Ontario, and Dr. T. C. Routley, the B.M.A.-C.M.A. President, as guest speakers. Dr. Phillips let a very small portion of cat out of the Ontario Government bag by saying that his department had been working since July 1 on a provincial health insurance plan of a modest nature which people could afford, for presentation at the federal-provincial conference. Dr. Phillips also said bluntly that he could not accept all the rosy picture painted by the British contributors to the National Health Service symposium at the B.M.A.-C.M.A.-O.M.A. meeting. Dr. Routley, after some well-turned compliments to doctors' wives, gave some interesting facts about the World Medical Association and world medicine in general.

This very agreeable meeting came to an end with a reception in the Concert Hall of the Royal York Hotel, although many participants also took advantage of the kindness of the various Toronto hospitals (Hospital for Sick Children and Toronto Western, Mt. Sinai, St. Michael's and Sunnybrook Hospitals) in arranging ward rounds for the next morning. Heartiest congratulations are due to the organizers for a public service. We understand that the newly formed Hamilton Chapter of the C.G.P. is interested in arranging a similar refresher course for the doctors of the Niagara Peninsula, possibly in January.

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MEDICO-LEGAL

PROTECTION OF PATIENTS FROM ACCIDENTS

T. L. FISHER, M.D.,* *Ottawa*

TO WORK EXPEDITIOUSLY and efficiently a doctor must arrange some of his office equipment, some instruments and some chemicals within easy reach. Some of these are potentially dangerous, such as the sterilizer, scissors or forceps, and solutions like local anæsthetics or silver nitrate. Adults usually can be relied upon to avoid contact with most of these things. Small children cannot; their clumsiness causes accidents or their curiosity gets them into trouble. Even when parents are present a child may be allowed to harm himself. If the cause of the damage is something which ordinarily should be beyond the reach of a child, something which in most doctors' offices would be beyond the reach of the child, the doctor may have to take some responsibility for the accident.

In 1952, because of a gastrointestinal upset, a five-year old girl was brought to a doctor's office. She was placed on the examining table and left in the room with her mother, who was sitting on a stool close to her. A window ledge was 34 inches above the examining table. Whether the mother failed to see what the child was doing or simply did not prevent her, the child reached a glass-stoppered bottle, dislodged the stopper and spilled the contents, a few drops on herself and more on the mother's back and neck. The bottle contained fuming nitric acid which the doctor kept in his examining room for the treatment of warts. Usually he kept it in a stainless steel cabinet. No one knew why it happened to be on the window ledge that day.

The mother's burns healed slowly. One month later they were healed, and two months later it was apparent that some of the scars would be permanent.

A few days after the last office visit the doctor received a letter from a lawyer telling him that the mother intended to hold him responsible for the damage caused by the acid burns. Four months later the doctor was informed that the patient demanded $2,500 in full settlement of the claim.

The solicitor chosen by the Canadian Medical Protective Association to act for the doctor advised settlement. His reasons were three:

(1) The bottle of fuming nitric acid was dangerous in itself and consequently the doctor was under a duty not to put it in a place easily accessible to a child patient. (2) The doctor was guilty of negligence and answerable in damages to the mother. (3) While she had no reason to anticipate the presence of the bottle of acid, the mother should have foreseen the presence of dangerous articles such as are usually found in any doctor's examining room (small sterilizers, instruments and various skin cleansing and antiseptic solutions), and she should have exercised reasonable care to ensure that her child did not meddle with anything in the room.

In the negotiations leading to settlement, the patient's claim was reduced to $1,000 and it was agreed that the mother was perhaps 25% to blame. The figure for settlement finally reached was $800.

*Secretary-Treasurer, Canadian Medical Protective Association.

Association Notes

FREEDOM OF THE CITY FOR PRESIDENT

DR. T. CLARENCE ROUTLEY, C.B.E., president of the Canadian Medical Association and the British Medical Association, received the key to the City of Charlottetown in a special and impressive ceremony in that city September 9.

The presentation, made by His Worship Mayor J. D. Stewart, took place in the City Hall before representatives of municipal government and more than 30 doctors and their wives. Dr. Routley, who had visited Prince Edward Island August 29 and 30 to attend the annual meeting of the P.E.I. Division as part of his presidential tour, returned to Charlottetown with Mrs. Routley for four hours to receive the freedom of the city. The presentation was not made during his earlier visit because of Mayor Stewart's absence at that time.

Dr. Routley was introduced to the gathering by Dr. W. J. P. MacMillan, O.B.E., member of

The President of the C.M.A., his wife and some of the party who accompanied him to the Maritimes. Sitting (left to right): Mr. L. W. Holmes, Mrs. Routley and the President, Toronto. Standing (left to right): Dr. A. F. W. Peart, Toronto; Dr. E. F. Brooks, Toronto; Dr. J. G. Petrie, Montreal; Dr. S. S. B. Gilder, Toronto.

Barter's Film Lab., Charlottetown

The President receiving the Key to the City of Charlottetown from His Worship Mayor J. David Stewart.

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the Executive Committee and one-time premier of P.E.I., who referred to the President as "one of the most distinguished of Canadians, a man who has won recognition throughout the entire world. The high standard now enjoyed by the Canadian Medical Association," he said, "is due to his planning and organizing."

Reading from a special citation bearing the city seal, Mayor Stewart stated:

> The Mayor and City Council of the City of Charlottetown welcome you in the name of all its citizens.
>
> We are proud, sir, that you should visit this Province and City in its centennial year, and more especially when you are holding the very distinguished honour of being the President of two pre-eminent associations. It is sometimes given to one in your field of endeavour to be honoured by one such organization, but being recognized with such acclaim by two, makes you a very, very outstanding person in the field of world medicine.
>
> While we cannot claim you, sir, as a native of Prince Edward Island, nevertheless we feel that you are one of us, being a Canadian citizen, and we feel proud of you in that you have brought to our Canada such recognition, not only by the people of Britain but we know too that you have been recognized in no small degree by the World Medical Association. Your career, since you started out as a Bachelor of Medicine in 1915, has been most outstanding and you have brought honour to your native soil.
>
> As an appreciation of the honour extended to us by your visit, we give to you the Key of our City as a memento of your visit to us in our Centennial Year.

In replying to the Mayor and to Dr. MacMillan, Dr. Routley said he accepted the honour, not only on behalf of himself, but on behalf of the medical profession, "and particularly the profession in Prince Edward Island which has given so much to organized medicine."

After the ceremony at the City Hall a reception was given in the lounge of the Charlottetown Hotel. Dr. J. K. L. Irwin, president of the P.E.I. Division, and Mrs. Irwin, Dr. Routley and Mrs. Routley, were in the reception line. Mrs. W. J. P. Macmillan, on behalf of the ladies, presented Mrs. Routley with a corsage of roses.

MEDICAL SOCIETIES

ASSOCIATION DES MEDECINS DE LANGUE FRANCAISE DU CANADA

The 25th Congress of the Association des Médecins de Langue Française du Canada, held at the Sheraton-Mount Royal Hotel, Montreal, September 21-24, is said to have been the most successful ever held. This reporter has not had the privilege of attending an earlier congress, but finds no difficulty in believing the above statement, for attendance and enthusiasm on this occasion were at a very high level. Over 1,400 registered at this meeting, in which everything else had been subordinated to the scientific programme. This programme was a formidable affair, running through from 9 a.m. to 12 noon and 2 to 6 p.m., with film showings interpolated between 8 and 9 a.m., and again between 1 and 2 p.m. Speakers followed each other in rapid succession, usually at 20-minute intervals, and were strictly disciplined by flashing lights and ringing bells so that the programme was seldom more than a few minutes behind schedule.

Plenary sessions, which were well attended, particularly by younger doctors, contained a cross-section of all branches of medicine from simple general expositions of psychotherapy and psychoanalysis by Drs. Cloutier and Boulanger up to esoteric studies of phosphorus metabolism in aging rats. A booklet containing abstracts of many of the communications was given to registrants, as a guide for their participation. In addition to the plenary sessions, several section meetings on preventive medicine, pædiatrics, ophthalmo-otolaryngology, anæsthesiology and radiology were held concurrently.

Highlights of the Thursday sessions were a symposium on intestinal obstruction, a forum on pruritus ani et vulvæ, and a symposium on jaundice. The second day began with an excellent film in colour on examination of the breast, with commentary by Dr. François Archambault, Secretary of the Congress. Other papers of general interest included a review of the research programme in microbiology at the University of Montreal by Dr. Armand Frappier, a review of cancer research by Dr. Cantero, a symposium on sterility, and a forum on bronchial dilatation. Saturday's programme included four useful papers on pædiatrics by Drs. Letondal, Charbonneau, Royer and Bertrand, remarks on chlorpromazine hepatosis by Dr. L. C. Simard, a symposium on goitre and hyperthyroidism and a lively forum on the abuse of cortisone, hormones and antibiotics.

In addition to the usual commercial exhibition, there was a scientific exhibition with 10 booths. A very interesting feature of the latter was the remarkable collection of chest radiographs, including some real curiosities, very ably demonstrated to this reporter by Dr. André Mackay.

HUMAN MEDICINE VS. SCIENTIFIC MEDICINE

Perhaps the most original and exciting item on the programme was the Friday night public session arranged by the Committee on Economics on "Human Medicine vs. Scientific Medicine". The Committee had lined up three speakers charged with telling us what the public is thinking about the medical profession and what is lacking in present-day medicine. The star of the evening was undoubtedly Mr. René Lévesque, commentator from Radio-Canada, who told us what the middle class thought about the medical profession, basing his talk on data obtained from some 50 interviews with middle-class persons. Mr. Lévesque pulled no punches but accompanied his onslaught with a gentle humour which robbed his remarks of any offence. He said that there is a new and developing climate of anti-medical opinion. In fact, one man, asked about the profession, said to him "just read Molière again". Many persons said "I know an excellent doctor, *but* - - - ". The emphasis was always on the "but". The middle class deplores the disappearance of the general practitioner in large cities. The specialist is hurried, impersonal and grand, and the patient dare not mention to him symptoms outside the specialist's field. Medicine is depersonalized, and there is a feeling that many doctors think of business first and medicine second. Patients come to the doctor with an anticipatory fear of the cost of medical care. Mr. Lévesque introduced the idea of "guilt by association" in connection with hospital and drug costs. He said that it is idle for the profession to brush these aside as not its concern; the hospital and the pharmaceutical firm are impersonal objects, so the patient turns his anger on the doctor, finding him guilty by association. The public is also discontented with the maldistribution of doctors. Mr. Lévesque saw prepaid medical care as the only solution.

Mr. Gérard Pelletier, of the Catholic trades union, C.T.C.C., spoke from the working man's point of view, agreeing with the last speaker and saying that the working man had two grievances against the medical profession: (1) doctors talked a language he did not understand, and thus made the patient feel ill at ease and despised; (2) doctors were satisfied with what the working man regarded as an out-of-date and undemocratic organization. He said that unattractive hospital waiting rooms made more enemies for medicine than ever the doctor's bills did. Mr. Pelletier said, however, that the working man genuinely wanted to be on better terms with the medical profession, and would be only too ready to listen if the doctors would only put their cards on the table and stop washing their hands of a bad situation.

The Reverend Father Raymond Voyer, Professor of Philosophy in the University of Montreal, rounded off the evening with a recapitulation of the elements of moral philosophy involved in the doctor-patient relationship, mentioning the enormous responsibility placed on the doctor every time he sees a patient, and the significant effect of illness on the whole man, not only on his body.

The Association's banquet, held on Saturday night, was a brilliant affair in the charming Sheraton room of the hotel. Oak beams, candles, an orchestra playing mostly French tunes, good wines from France, a distinguished company at the head table, headed by Dr. Roma Amyot, President of the Congress, and including the deans of the medical schools of Laval, Montreal and Ottawa Universities and the President of the British and Canadian Medical Associations—all things combined to produce a memorable evening, with a journalist, Mr. Jean-Louis Gagnon, reading a paper on "the human race" of a profundity seldom heard after dinners in this frivolous age.

The Association announces that their 26th Congress will be held at Jasper, September 13-16, 1956, and that the President will be Dr. Louis-Philippe Mousseau of Edmonton.

FOURTH SYMPOSIUM NEURORADIOLOGICUM

(From our own correspondent)

The fourth Symposium Neuroradiologicum was held in London, England, at the University Senate House, from September 13 to 17, with Dr. J. W. Bull (London) as President. Among the topics discussed were the intervertebral disc, pneumography, diagnostic radiological procedures, angiography and the use of isotopes. Dr. D. McRae (Montreal), in the discussion on symptomless vertebral disc protrusions, said that autopsies had been made on patients over 40 years with evidence of disc protrusion in many of them. Yet in life the lesions did not always give rise to symptoms. Other speakers, however, thought that there was good correlation between the clinical findings and the radiological visualization of the prolapsed disc, using contrast media or gas myelography. Drs. F. Hudson and F. Cramer (New York) said that cervical intervertebral disc lesions were sometimes associated with and initially obscured the presence of cervical cord tumours. Using lateral projections in maximal flexion and extension, Dr. J. Jirout (Prague) concluded from an analysis of 1,000 cases that an early sign of intervertebral disc degeneration was diminished motility between two vertebræ. To compensate for this there was increased motility in adjacent vertebræ. The condition of the intervertebral disc could be judged by the shape of the vertebral interspace in extreme flexion and extension; a degenerated disc allowed greater approach of the vertebral bodies than normally.

A joint session was held with the second International Congress of Neuropathology, which met at the same time in London, on tentorial herniation, which has come to be regarded as one of the causes of temporal lobe epilepsy and various brain lesions. Dr. E. Lindgren (Stockholm) considered that evidence of tentorial herniation could be obtained from encephalographic examination of the ventricular system. Dr. S. Sjögren (Stockholm) said that useful information could be obtained from angiography of the cerebral vessels, which might be flattened or displaced. Dr. E. Lindgren described a new technique for angiography of the vertebral arteries. A polyethylene catheter was passed into the femoral artery, up the aorta and into the innominate artery and left subclavian, and 15 ml. of contrast agent injected. No attempt was made to catheterize the vertebral artery itself. Dr. J. Viallet and his colleagues (Algiers) claimed that adequate simultaneous visualization of the carotid and vertebral arteries could be obtained by the intravenous injection of contrast media. A complex piece of apparatus was described by Dr. A. Stauffer (Philadelphia) for biplanar stereoscopic cerebral angiography using "Urokon" as a contrast agent. Twelve exposures were made in seven seconds in both planes simultaneously. Out of 400 cases examined there were untoward effects in only five. Rapid serial angiography was discussed by Dr. T. Greitz (Stockholm) and Dr. W. Schiefer (Cologne) for the diagnosis of intracranial disease and vascular function, and for the determination of circulation time. Dr. Greitz said, "It may not be long before we consider every cerebral angiogram that is not a rapid serial angiogram to be an incomplete examination." Kineradiography of the cerebral vessels was demonstrated by Dr. H. Veriest and Dr. H. Feddema (Utrecht), but there was considerable loss of detail. The technical solution to this appears to have been achieved by Dr. H. Vieten (Delft), who described two special mirror cameras for rapid serial angiography of the skull. Vascular lesions of the occipital lobes were attributed by Dr. H. Pia (Giessen) to compression of the internal occipital vein against the tentorial border, leading to venous congestion and infarction. Dr. L. Wolman (Sheffield) analyzed the findings in 270 patients dying with a tentorial pressure cone; 12% showed hæmorrhagic infarction of the occipital lobes, and infarction of the pituitary gland was observed in about 5%.

The use of isotopes in neuroradiological diagnosis was discussed by several workers. Dr. Kramer and his coworkers (London) described the use of radioactive potassium (K^{42}) for the localization of brain tumours. A reasonable degree of accuracy was obtained in 60 out of 100 patients. The use of this isotope for the diagnosis of supratentorial tumours was described by Dr. B. Selverstone (Boston) who stated that in 49 surgically verified tumours he obtained a diagnostic accuracy of 84% using K^{42}. There was one false positive in 39 cases without a cerebral lesion. He explained that if operation followed the diagnosis immediately, the radioactivity of K^{42} could be used to demarcate the tumour by means of a probe connected to a Geiger counter.

A paper on the use of radioactive arsenic in the localization of intracranial space-occupying lesions was presented by Dr. G. Brownell and Dr. W. Sweet (Boston). Radio-arsenic is a positron-emitting isotope and allows high resolution while maintaining good sensitivity. Thirty-two out of 33 meningiomas were diagnosed by this technique, and for other malignant tumours it had an accuracy of about 70%. Abscesses could also be diagnosed. The possibility of using the reflection of ultrasonic radiation of frequencies of about 1-3 megacycles per second for neuroradiological diagnosis was discussed by Dr. D. Gordon (London). Many problems would have to be overcome before this could be realized.

The high degree of accuracy in the neuroradiological diagnosis of cranial lesions was stressed by Dr. C. Johansen (Stockholm), who said that from a study of 864 cases between 1949 and 1953 the lesion was demonstrated and exactly localized in 853, i.e. in nearly

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98%. He said that the ordinary methods of roentgen diagnosis have a very high degree of accuracy, higher in fact than in any other diagnostic field.

WORLD CONGRESS OF ANÆSTHESIOLOGISTS 1955

(From a Special Correspondent)

The World Congress of Anæsthesiologists was held at Scheveningen, near The Hague, Holland, from September 5-10. It was organized by the Netherlands Society of Anæsthesiologists, under the chairmanship of Dr. C. R. Ritsema van Eck, and under the patronage of H.M. the Queen of the Netherlands. Over 1,200 members and associate members from all countries of the world, including the U.S.S.R., attended the Congress, which was opened in the Ridderzaal (Hall of the Knights) at The Hague by the Dutch Minister of Social Affairs and Public Health, and the Burgomaster of the Hague. Later in the day a reception was given by the Netherlands Government.

The main subjects of the Congress were the physiology of anæsthesia, hypothermia, hypotension, and muscle relaxants. Papers were read in English, French or German, and simultaneous interpretation of each language into the two others was available. The panel discussions held in the afternoons to discuss questions submitted by members arising from papers read were a very valuable part of the meeting. Members of the panels were specialists in the particular field of anæsthesia under discussion. Several films on topics of interest to anæsthetists were shown, and a trade exhibition of equipment and drugs used in anæsthesiology was also held. Here were exhibited some of the new muscle relaxants; the new steroid anæsthetic agent, Viadril; the new Hingson anæsthesia machine and resuscitator; a respiration control unit providing any desired breathing pattern with inspiratory and expiratory phases and expiratory pause, all independently adjustable, and with independent controls for positive and negative pressures; an apparatus for the automatic recording of the concentration of expired carbon dioxide; and a machine for the simultaneous recording of blood pressure, E.C.G., phonocardiograph and jugular, femoral and venous pulses.

The first day was devoted to papers on the physiological aspects of anæsthesia. Professor Pask (Newcastle) described a technique for assessing central respiratory depression by drugs in the presence of muscle relaxants. Dr. Harboard (Leeds) described investigations on pulmonary ventilation, which he said was deficient under spontaneous respiration in subjects receiving thiopentone and muscle relaxants; it was readily converted by artificial respiration. The adoption of correct physiological principles in the treatment of bulbar poliomyelitis and tetanus was stressed by Dr. Woolmer (Bristol), who considered that its management should be in the hands of the anæsthetist. The patient should be nursed prone with a head-down tilt in a respirator, or by changing the airway pressure, with a cuffed tube in the trachea, and a tracheotomy performed if controlled respiration were carried out for any length of time. The carbon dioxide tension in the arterial blood should be measured to see whether the patient was being over- or under-ventilated. The pH of the urine and minute volume of expired air should also be estimated. Turning the patient every two hours was important.

The possible damage to brain cells and kidney glomeruli during anæsthesia was stressed by some speakers; both brain and kidney cells are very susceptible to anoxia and hypotension. Dr. Carstensen (Würzburg) considered that kidney function tests should be carried out preoperatively. Dr. Pedersen (Hillerod, Denmark) said that the problems of modern anæsthesia could be better understood by applying the concepts of the general adaptation syndrome (alarm reaction, catabolic phase and anabolic phase). The excitement stage in classical anæsthesia represented the alarm reaction. Modern techniques produced a non-hypoxic hypoxidosis, with diminished tissue respiration. A sudden increase in oxygen demand due to stress stimulation, inadequate anæsthetic inhibition, and adaptation syndrome response might be disastrous, especially in cases of hypoxia. The catabolic phase occurred after major surgery, with a negative nitrogen and potassium balance and retention of sodium and water. Hyperreactors might die in exhaustion during a prolonged catabolic phase or return to the alarm reaction, whence they rapidly went into shock.

HYPOTHERMIA

In the section on artificial hibernation and hypothermia Professor Virtue (Denver) described the technique that he had perfected. The patient was cooled in a bath with ice-cold water before the operation, with a muscle relaxant to stop shivering. The temperature was kept at 30-32° C. and the pulse rate at about 40. Blood was replaced if lost in the operation, and the patient subsequently warmed by diathermy. A defibrillator was kept ready in case of auricular fibrillation, the E.C.G. was recorded continuously, and the blood pH determined to ensure that there was no excess of carbon dioxide. Blood volume studies were also done routinely. Dr. Gray (Liverpool) described experiments suggesting that the good condition of patients who have been cooled before extensive operative procedures was due to the conservation of the stress responses for the recovery period instead of being partially exhausted at the time of the operation. During hypothermia the excretion of cortical steroids remained at a level comparable with that of the preoperative phase. Immediately on recovery the excretion of cortical steroids in urine increased threefold or fourfold. Dr. Lucas (London) said that he preferred immersion for operations in children and for neurosurgery, and vascular cooling in other cases. He measured the temperature of the heart with a thermometer in the middle of the œsophagus, and a thermometer in the pharynx gave a rough idea of the temperature of the blood returning from the brain. Small animals could be cooled to 0° C. for one hour, and Dr. Lucas wondered if this could be done in man, as the oxygen uptake would then be minimal. Other workers described the use of hydergine and diethazine in lowering body temperature. Dr. Hössli (Zürich) described the use of artificial respiration and hypothermia (32-35°) in the treatment of wound tetanus, and Dr. Lüttichau (Mannheim) the treatment of severe shock by hypothermia induced by the technique of Laborit. Apparatus for the complete control of temperature in hypothermia was shown by Dr. Just (Berlin). A pump circulated water at any desired temperature through a rubber bag wrapped round the patient. Rewarming could then be done rapidly.

HYPOTENSION

Some difference of opinion was shown in the sessions in which hypotension was discussed. Dr. Enderby (London) favoured controlled respiration when using hypotensive techniques, but Dr. Kern (Paris) considered this undesirable as it reduced the blood volume in the circulation and produced circulatory anoxia. Several speakers mentioned the use of reserpine as an adjunct in securing hypotension. Dr. Hale (Cleveland) said that he used a combination of a drip of "Arfonad" and withdrawal of 300 c.c. of blood. Dr. Gillies (Edinburgh) described his method of producing hypotension by a spinal block. There were no permanent changes in the E.C.G.

Dr. Bromage (Chichester) found that there was an increase in vital capacity after induced hypotension, except in patients already dypsnœic with cardiac or pulmonary disease.

NEW PRODUCTS

Two new muscle relaxants were discussed at the meeting. Dr. Frey (Heidelberg) gave an account of the use of "Prestonal" in 1,000 patients. Its duration of action was five to seven minutes, and recovery was almost complete in half an hour. It resembled *d*-tubocurarine in its mode of action. Professor Brucke (Vienna) described the use of "Imbretil" (hexamethylene 1:6-bis-carbaminoyl choline bromide), which had an initial action like succinylcholine, followed by a paralysis of a curare type. The duration of action was about an hour. Its long action suggested that it might be of value in tetanus. Dr. Levis (London) said that gallamine passed the placental barrier more readily than *d*-tubocurarine, which was therefore preferable for use in obstetrics. There was no increase in mortality figures in Stockholm since the introduction of muscle relaxants, according to Dr. Gordh.

The new steroid anæsthetic, Viadril, was the subject of a communication from Dr. Guardagni (Los Angeles). He commented on the lack of respiratory depression compared with other intravenous anæsthetics, and the smaller dose of muscle relaxants needed. In some operations no muscle relaxant was required. Viadril had true anæsthetic properties not seen in the barbiturates.

INTERNATIONAL CONGRESS OF ANATOMY

The sixth International Congress of Anatomy was held in Paris, France, on July 25-30, 1955. The meetings were held at the new Faculty of Medicine of the University of Paris, a fine building of eight floors situated on the Rue des Saints-Pères near the left bank of the Seine.

The president of the Congress was Professor Rémy Collin, assisted by Professors Cordier and Delmas. There were nine sections meeting simultaneously and while all languages were official for the Congress, the majority of the papers were given in French, English being the second choice. Final registration figures were not available before leaving Paris but the total registration including associates was over 900 and the total number of delegates was over 700, about 30 countries being represented at the meeting. As might be expected, the majority of the delegates were from France and neighbouring European countries. There were about half a dozen Canadian anatomists at the meeting, with a rather small representation from the United States.

The arrangements by the French committee were very efficient and three official entertainments were provided for the delegates—a visit to the Hotel de Ville with an official welcome by M. Féron, chairman of the city council; a visit to the Louvre one evening; and a visit to the Château of Versailles on the final evening where the delegates and their wives were entertained at dinner in the Orangerie and afterwards shown the very impressive spectacle, "Son et Lumière."

Apart from the scientific presentations, which will be reported in the various journals appropriate to the subject matter, there were two items of major interest to Canadian anatomists in particular and the medical profession in general. The first was that the report of the Committee on Anatomical Nomenclature was received and proved to be very generally acceptable even to those in countries where Latin was not a basic language. There were, of course, numerous minor criticisms of particular terms but on the whole there was considerable satisfaction with the work of the committee and it was agreed to accept the report *in toto* with the provision that anyone who had an exception to make should do so in writing after the Congress was over and that the committee would then consider all exceptions and criticisms at a future meeting.

The Committee on Nomenclature had been established and was able to proceed with the work because of a grant from the Council for International Organizations of Medical Science. The report of this committee was published with the financial assistance of UNESCO. Copies of the report have been sent to all anatomists in Canada and additional copies may be obtained on request. The Ciba Foundation in London offered their premises for the meetings. At the first session Dr. G. W. Corner was elected as chairman and Professor T. B. Johnston as honorary secretary. The general principles governing the work of the committee were as follows:

(a) That, with a very limited number of exceptions, each structure shall be designated by one term only.

(b) That every term in the official list shall be in Latin, each country to be at liberty to translate the official Latin terms into its own vernacular for teaching purposes.

(c) That each term shall be, so far as possible, short and simple.

(d) That the terms shall be primarily memory signs, but shall preferably have some informative or descriptive value.

(e) That structures closely related topographically shall, as far as possible, have similar names—e.g. arteria femoralis, vena femoralis, nervus femoralis, etc.

(f) That differentiating adjectives shall be, in general, arranged as opposites—e.g. major and minor, superficialis and profundus, etc.

(g) That eponyms shall not be used in the Official Nomenclature of Gross or Macroscopic Anatomy.

These principles are almost identical with those instituted by the B.N.A. in 1895 with certain compromises. The committee was strongly of the opinion that in all scientific publications in journals, abstracts etc., the official Latin term should always be used, especially in the titles.

The committee agreed that it was inadvisable to attempt an international nomenclature for human embryology and histology at present. A number of terms had been included in this report but there was no attempt to cover these sections in the present review.

The other item of particular interest was that the invitation of the American Association of Anatomists to have the next Congress meeting in New York in 1960 was accepted by the Congress, and undoubtedly Canadian anatomists will be invited to participate at this meeting. This gives rise to the interesting possibility that some association of the Canadian anatomists may be developed in the near future in order to establish the identity of Canadian anatomists in the international field.

H. ALAN SKINNER

SECOND INTERNATIONAL CONGRESS, INTERNATIONAL DIABETES FEDERATION

The Second International Congress of the International Diabetes Federation was held in Cambridge, England, at the University of Cambridge, July 4-8, 1955, under the honorary presidency of Sir Lionel Whitby, Professor of Physic (Medicine) at the University. More than 400 members from all parts of the world attended the Congress, which was organized with the financial help of the Council for International

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Organizations of Medical Sciences. Dr. Elliott P. Joslin, Boston, and Dr. Charles H. Best, Toronto, are the honorary presidents of the Federation.

After the opening ceremony, held in the Senate House of the University on July 4, Dr. Joslin delivered the Ninth Banting Memorial Lecture of the British Diabetic Association, his subject being "Diabetes for the Diabetics".

A wide variety of subjects was discussed at the 15 scientific sessions. Dr. M. Jersild (Copenhagen), reviewed four years' clinical experience with the trinity of Lente insulins at the Hvidore Hospital. In the past four years more than 1,000 patients, the majority of them inpatients, have been adjusted to Lente or Lente mixtures. Based upon the daily blood sugar curves, Jersild sought to obtain the best possible one-injection adjustments. Approximately 95% of the patients were discharged on a single injection each day, the rest on two injections. Of the one-injection group, about 70% had previously been adjusted on two daily injections, usually of a depot insulin. The average insulin requirement was 40 units. Lente was used in 80% of the cases, a mixture of Lente with Ultralente in 10%, and mixtures of Lente and Semilente in 10%. In the two-injection adjustments, Lente was used both morning and evening. After discharge, the great majority were in satisfactory condition on the adjustment arrived at, considering duration, severity and complications of the diabetes. There were only rare instances of insulin shock or acidosis. Local reactions were observed in only a few cases.

Dr. W. G. Oakley (of London), in discussing lesions of the feet in diabetes, brought forward evidence against the view that diabetes produces a specific form of arterial disease, and to show that the common lesions of the feet in diabetics can be accounted for either in terms of senile arterial disease alone or in conjunction with diabetic neuropathy. The importance of age in the production of these lesions is greater than the severity, degree of control or duration of the diabetes, true vascular disease being rare below the age of 50 even in those who have had diabetes for 20 years or more. The importance of neuropathy as a major factor in the etiology of the "diabetic foot" has not been sufficiently appreciated.

In a small series of cases of severe ketosis treated with insulin and intravenous fructose (100 to 150 g. in the first three hours), J. D. N. Nabarro, J. C. Beck and J. M. Stowers (London), observed that: (1) Glycosuria and loss of water and electrolyte in the urine were greater than in a comparable series treated without carbohydrate in the first three hours. (2) The rate of fall of the blood sugar was slower and the insulin requirement difficult to estimate. (3) Ketosis cleared rapidly and the clinical response was satisfactory.

From the literature and his own observations, Professor J. W. Grott (Lodz, Poland) concluded that diabetes or a pre-diabetic state may often be discovered in persons over 40 when attention is paid to a syndrome consisting of the four symptoms: (1) age about 50; (2) obesity or a tendency to it, (3) pronounced paradontosis, and (4) atrophy of subcutaneous tissue in the region of the pancreas.

Dr. Laurance W. Kinsell and his associates (Oakland, California) reported that hypophysectomies had been performed in five patients with diabetic vascular disease, with no operative death. On the basis of clinical and metabolic observations to date, the following tentative conclusions were drawn: (1) Juvenile diabetic patients with progressive vascular disease associated with clinically obvious eye and renal damage, but with a reasonable degree of renal reserve, are potential candidates for hypophysectomy. Clinically speaking, "reasonable renal reserve" for the present means the ability to maintain a normal blood urea nitrogen during the intake of 50 g. of dietary protein daily. (2) Hypophysectomy in such patients, without exception, results in the substitution of insulin sensitivity for insulin resistance, and consequently in relative ease of regulation of the diabetes. (3) Clinical and metabolic evaluation indicates that within six months following hypophysectomy not only is there evidence of lack of further progression in vascular disease involving the eyes and kidneys, but actual evidence of improvement.

Dr. Roland Luft (Stockholm) reported the experience gained from hypophysectomy in 18 cases of juvenile, severe diabetes mellitus with complications mainly from the eyes and the kidneys. The 11 surviving cases have been observed for periods of from six months to three and a half years. With a standardized diet and a daily substitution of 10-15 mg. of cortisone, a marked decrease was observed in the insulin requirement. No progression of the diabetic retinopathy was observed; amelioration was noted in some cases.

Dr. Henry Dolger and his associates (New York) reported two years' experience in a prenatal diabetic clinic. A series of 100 diabetic pregnant women, 50 private and 50 ward patients, were observed during the first two years of a new maternity wing of a general hospital. No hormone treatment was employed; the only uniform approach was limited to premature delivery by induction or section four weeks before term. There was no maternal morbidity or mortality; the total fetal and neonatal loss amounted to 20%.

The management of infants born to diabetic mothers was discussed by Dr. Alfred E. Fischer and Dr. Ralph E. Molorshok (New York) who reviewed the outcome of 75 pregnancies occurring in 55 diabetic women. The rate of fetal loss and the neonatal mortality rate were correlated with (1) the duration of diabetes in the mother, (2) the order of pregnancy, and (3) the adequacy of the control of diabetes. Supplementary hormones were administered in only three patients. The routine management of these infants was outlined, excluding the use of neonatal gastric aspiration, regulated administration of oxygen and humidity, and incubator care. Fluids by mouth are regularly withheld for 24 to 48 hours or longer if there is any respiratory distress. The implications of the diagnosis and management of the following emergencies during the neonatal period were discussed: (1) acute respiratory distress and the hyaline membrane syndrome; (2) sudden shock and collapse; (3) cardiac failure, and (4) hypoglycæmia. Emphasis was placed upon the importance of close liaison between the physician treating the mother's diabetes, the obstetrician and the pædiatrician. Since nearly all the infants are delivered prematurely, they require the same close nursing and pædiatric supervision afforded the premature infant throughout the neonatal period.

The diagnosis of pre-diabetes was discussed by Dr. W. P. U. Jackson (South Africa). "Prediabetes" is now an accepted condition, well recognized throughout the world. Women in their "prediabetic" period divulge their future fate by the production of babies that are too large, too heavy, fat, œdematous, rubicund, weak and "Cushingoid." Many are stillborn or die shortly after birth. Some glycosuria may have been present during pregnancy. Frequently these women gain in weight excessively during or shortly after the pregnancy. Frequently there is diabetes in their family history. Dr. Jackson believes that "prediabetes" is not just of retrospective interest, but can be definitely diagnosed. This allows suitable measures to be taken to prevent overt diabetes and to obtain living children. The diagnosis can be made (1) from the history as indicated above (diabetes and prediabetes is the commonest cause of "unexplained" stillbirth); (2) from repeated simple glucose tolerance curves, preferably during pregnancy, but often after pregnancy also; (3) by examination of the pancreatic islets of the stillborn, which are greatly hypertrophied; (4) and confirmed by waiting until the patient becomes an obvious diabetic.

CORRESPONDENCE

BRITISH NATIONAL HEALTH SERVICE

[The writer of the letter below, Dr. J. H. S. Geggie, has recently returned from a year's postgraduate work in England. He was invited to comment on the National Health Service from a Canadian practitioner's point of view. His comments are reproduced here.]

To the Editor:

I am unqualified to state what is the present U.K. picture in N.H.S., what antedates N.H.S. and what is just English! Certain it is that the docility of the English patient and the awe in which he regards his doctor create a different panorama for planners than that which we have here. This "Englishness" alone precludes the institution of a similar scheme in Canada.

It seemed to me that the general practitioner has been relegated to an inferior or second-class position. Drugs of known and proven value are denied him. Hospital facilities are not afforded him except in isolated communities. Simple surgical procedures are deemed consultant province only. Normal obstetrics is in the hands of midwives and family doctors and home delivery is the rule. Complicated obstetrics is seldom managed by the G.P. Simple office procedures seem to find their way to hospital casualty departments where an intern with less experience than the G.P. handles them. Patients are referred to consultants, are dutifully added to an already long list, and are lost sight of by their own doctor. Hospital waiting lists are months or years long and are admittedly growing longer. An incapacitating but non-emergency surgical problem may wait 18 months. The G.P. has done his bit by getting the patient to a consultant. The consultant has done his bit by getting him on his list. National assistance supports him while he waits. Among all these good men (and they are excellent men) there seems a satisfaction with the status quo that smells of the grave. Perhaps it is because so much of the onus has been removed from individual shoulders and deposited with the state plan. I felt that the potentially biggest producers were being held back and the zeros were being carried along. It astounded me to see the provision of medical care divorced from public pressures and public clamour. I happen to believe that the average citizen is a better judge of his needs than is any committee or state organization.

Financially speaking, the general practitioner seems to enjoy a standard of living similar to his counterpart in this country. Certainly he enjoys more regular hours, more security and guaranteed holidays. He is, moreover, free of the fierce competition that watches over every move in Canada. But is all this good for the patient? I didn't think it was. In fact, I sometimes felt that the scheme has "bought" the medical profession. We must be careful to take note of any element of this nature in the Canadian medical future. It is possible that a sufficient number of us would sell too if offered as good terms.

One need not list the inadequacies in Canadian medical coverage. They are self-evident, and something must and will be done. However, we must avoid the British mistakes. It must continue to be profitable to be a good general practitioner. A fee for service is the answer here. Over-centralization must be avoided. Neither doctor nor patient direction can be accepted. Doctors must be free to settle where and when they wish, irrespective of medical need in that area. Patients must not find themselves on "lists"—any lists anytime anywhere. Choice of doctor and choice of patient must continue to be one of the fundamental, unfettered rights.

In conclusion may I stress that however excellent the N.H.S. is on paper, in practice it has great deficiencies. The system may be good for Great Britain. This must be the case, as so many eminent British doctors have assured us of the fact. What a happy state it will be when we have such unanimity of opinion in Canada. Or will it?

J. H. S. Geggie, B.A., M.D., C.M.

Wakefield, Quebec,
September 10, 1955.

PROTHROMBIN TIME

To the Editor:

Perhaps some of your readers may be interested in the attached form for charting prothrombin times (Fig. 1) recently introduced at the Calgary General Hospital. Our doctors are finding this chart a great improvement over other methods of charting.

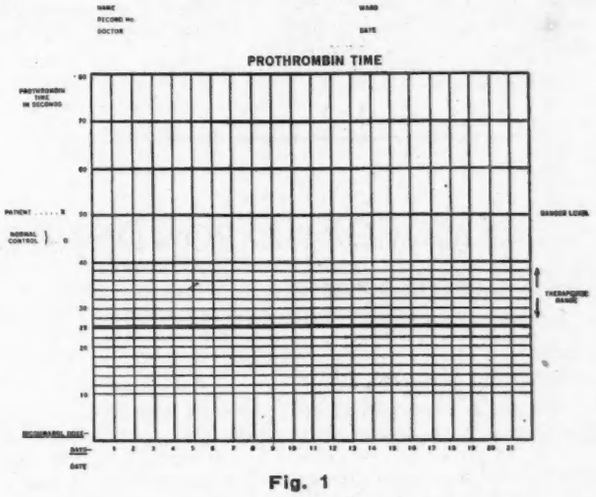

Fig. 1

Two copies are made for each patient, one being kept in the laboratory and the other on the patient's chart. Each morning the laboratory copy is sent to the ward, and the data transcribed to the ward copy. One copy is then returned to the laboratory.

Joseph B. Aitken, M.D.

Suite 4, Medical Arts Building,
Calgary, Alta.,
August 29, 1955.

MAIL ADVERTISING

To the Editor:

It is curious and rather disquieting to find how little protection we have against the aggression of advertising. The particular aspect I have in mind is that form which comes in the mail—what, for lack of a more descriptive term, I call garbage mail; for the garbage tin is always and immediately its fate.

Apparently there is no known method by which one can escape this wearisome deluge, except by retiring into complete obscurity; for the key to it is the mailing list which anyone can make up from telephone or other directories, or obtain ready-made from various sources. If one's name were not available for such lists one would

be that unique but happy individual who received no mail advertising. A given advertiser might on request remove one's name from his list, but I am assured by those who know the business that it is not practicable to carry this out in any effective degree.

So that there is nothing, sir, that you or anyone else can do about it beyond allowing me to voice this minor but still irritating grievance.

H. E. MACDERMOT, M.D., F.R.C.P.[C.]

4100 Cote des Neiges Road,
Montreal, Quebec,
October 3, 1955.

[Short of going underground, which has its inconveniences, there is indeed little that Dr. MacDermot can do about this. Advertisers are convinced that they get business by this type of advertising. If they are right, Dr. MacDermot must resign himself to the fate of all minorities. However, complaints in American and British medical journals suggest that they could be wrong, and that a fair proportion of professional men are more exasperated than seduced by mail advertising. A recent writer in the *J. A. M. A.* says that he has solved the problem of disposal by turning all material, samples, etc., over to the local St. Vincent de Paul hospital. Perhaps some committee somewhere will organize a survey of medical men to find out their reactions to mail advertising. Then we shall know.—ED.]

SPECIAL CORRESPONDENCE

The London Letter

(From our own correspondent)

SCOTTISH DOCTORS LEAD

For some time the more far-seeing members of the profession have been worried by the implications of certain High Court judgments based upon the National Health Service Acts. These judgments seemed to indicate that the Acts had established a State hospital service in which hospital staff were in law State servants. In July, the Central Consultants and Specialists Committee (Scotland) asked the Joint Consultants Committee (Scotland) to take certain steps to secure the re-establishment in law of the relationship of hospital doctors, general practitioners and local authority medical officers to the management of hospitals that existed before the N.H.S. Acts. As a preliminary the Joint Consultants Committee decided to take a referendum on the subject of all doctors practising in Scotland. A report just published shows that, so far, 1,001 hospital doctors have voted in favour of action being taken and only 94 against. To date, most local medical committees (representing general practitioners) have supported the views of the hospital doctors. In other words, the vast majority of Scottish doctors wish to ensure that it will again be accepted in law that they are fully and solely responsible for the treatment of patients in their care. There are still many replies to come in, but these preliminary figures are an encouraging indication that the profession is still anxious to assert its professional independence. They are particularly welcome at the present moment when there is increasing evidence of interference on the part of management committees in the clinical supervision of patients.

INDUSTRIAL HEALTH SURVEYS

With a view to developing the industrial health services of the country, and co-ordinating them more closely with the National Health Service, the Industrial Health Advisory Committee, the chairman of which is the Minister of Labour, has recommended that two pilot surveys should be carried out. The aim of these surveys is to find out the needs for industrial health services in particular places and how these services could be best organized. Halifax has been chosen for the first of these surveys as it is a town of medium size (population 100,000) and has a range of industries, including wool, engineering, chemicals and confectionery. The survey is to be carried out by a team of inspectors of factories, who will examine every factory in Halifax. Their findings will be reported to a local advisory committee, consisting of representatives of employers' organizations, trade unions and the medical profession. Once this report has been accepted, the district inspector will approach individual firms where a clear need for preventive measures is shown. If medical supervision seems desirable, the firms concerned will be asked to make arrangements with local doctors. Particular attention is to be devoted to smaller factories—which constitute the vast majority of factories—to ensure that their standards are satisfactory. In their case a group scheme would probably be the most practicable, so that one local doctor could advise several factories in one area.

HOMOSEXUALITY

By a majority of 41 votes to 33 the Magistrates' Association has recommended that homosexual conduct in private between consenting adults, aged 30 or over, should no longer be a criminal offence, except where a mentally defective person is concerned. The Association is at pains to point out that their recommendation in no way alters its view that homosexual practices are undesirable and dangerous, both to the individual and the community. It deprecates any lower age of consent on the grounds that many persons in their twenties are still emotionally immature and capable of corruption. The Association also recommends that prosecutions for major homosexual offences should be brought only by the Director of Public Prosecution or by the Attorney-General, and that psychiatric treatment should be given to offenders willing to co-operate. In the view of the Association: "Incarceration in an institution, where perverted tendencies may be aggravated, would always be a last resort." This compromise is unlikely to please either side in the current controversy on the subject, but it is an interesting indication of how an influential section of the community hopes to maintain moral standards with a minimum of sanctions.

MEMORIAL TO JAMES PARKINSON

On September 17, a plaque in memory of James Parkinson, of shaking palsy fame, was unveiled and dedicated at St. Leonard's Church, Shoreditch, the church in which he was baptized and married, and where he was buried in 1824. The plaque is the gift of the nursing staff of St. Leonard's Hospital, which stands on the site of the parish infirmary to which Parkinson was visiting physician. The unveiling was performed by Dr. D. A. Morris, formerly medical superintendent of St. Leonard's Hospital, who has been largely responsible for this commemorative occasion in the bicentenary year of Parkinson's birth. Parkinson, who was born in Hoxton on April 11, 1755, spent the whole of the 69 years of his life in the same parish. The site of his house, 1 Hoxton Square, is now occupied by a factory. His famous "Essay on The Shaking Palsy" was published in 1817. He was a man of many parts, being a keen social reformer and geologist as well as an astute clinician. In 1794 he was examined on oath before the Privy Council as he was thought to be a party to the plot to assassinate George III.

WILLIAM A. R. THOMSON

London, October 1955.

ABSTRACTS *from current literature*

MEDICINE

Prevalence and Nature of Hepatic Disturbance Following Acute Viral Hepatitis with Jaundice.

NEEFE, J. R. *et al.*: ANN. INT. MED., 43: 1, 1955.

The apparent initiation of chronic liver disease by acute illnesses presumed to be acute viral hepatitis has been observed sufficiently often to warrant serious consideration of this infection as a potential cause of chronic liver disease. However, the exact nature of this relationship, the frequency with which chronic hepatic disease is initiated by acute viral hepatitis, and the factors responsible for this presumed sequence of events have not been well defined. In an attempt to clarify this relationship, if it exists, the authors carried out an intensive study of 651 persons in military service divided into three groups: (1) A "posthepatitis" group, consisting of 271 representative persons in whom a diagnosis of acute viral hepatitis had been made two to seven years previously; (2) A "heavy exposure" group, consisting of 138 persons whose records indicated unusual exposure to hepatitis virus during the preceding seven years; (3) A "minimal exposure" group, consisting of 242 persons selected because of the lack of any recognized unusual exposure to the hepatitis virus.

The study of each subject included a detailed history, a complete physical examination, and a comprehensive group of hepatic tests, including serum bilirubin, urinary urobilinogen, cephalin flocculation, thymol turbidity, thymol flocculation, bromsulfalein retention, serum proteins, and others. Needle biopsy of the liver was performed in 11 selected cases.

Surprisingly enough, it was found that, for males of the age groups studied, the prevalence of demonstrable severe or active chronic liver disease was not significantly higher in those with a previous history of hepatitis with jaundice than in those with no previous history of recognized hepatitis. The occurrence of chronic hepatic disease following acute viral hepatitis may depend on an association of hepatitis with other etiological or predisposing factors related to the host and environment. The occurrence of an episode of liver disease more than three symptom-free years after an initial attack of hepatitis should make one consider the possibility of a new infection or other process, rather than an exacerbation of the original disease. S. J. SHANE

Factors Influencing the Late Results of Mitral Valvuloplasty for Mitral Stenosis.

ELLIS, L. B. AND HARKEN, D. E.: ANN. INT. MED., 43: 133, 1955.

A study is reported of various factors that affect the late results in patients with mitral stenosis operated on by mitral valvuloplasty. This study is based chiefly on a follow-up of the first 500 patients. Of the patients surviving operation 78% showed significant and usually persistent improvement over the period of observation, which averaged 22 months. The factors which led to fewer good results were: (1) age over 40; (2) auricular fibrillation; (3) associated aortic valve disease; (4) associated mitral insufficiency of moderate degree or more; (5) a preoperative valve size of more than 1.0 sq. cm., (6) a postoperative valve size of less than 2.5 sq. cm.; (7) calcification of the mitral valve. Even in the less successful categories the results were still good in a majority of the patients. Poor late results occurred in direct proportion to the number of adverse factors present.

The procedure appears to protect substantially against late peripheral embolism, although the incidence of operative emboli is somewhat greater in patients who have had previous emboli than in the groups as a whole. Good end results depend on intelligent and careful selection of patients and on the quality of the valvuloplasty performed by the surgeon. S. J. SHANE

Hepatic Damage in Chronic Pulmonary Tuberculosis.

BAN, B.: AM. REV. TUBERC., 72: 71, 1955.

Ninety-four cases of chronic pulmonary infections, tuberculous and non-tuberculous, were studied. In the control group of 34 non-tuberculous patients, more than three liver functions were disturbed in five patients. Thirty-three successful liver biopsies revealed morbid changes of minor degree in six cases. In a group of 60 patients with pulmonary tuberculosis, 45 had an abnormal thymol turbidity; 45 had an abnormal cephalin cholesterol flocculation; bromsulfalein retention was abnormal in 51 patients, with disturbance in albumin-globulin ratio. Serum bilirubin and alkaline phosphatase were within normal limits.

Examination of needle biopsy material showed fatty degeneration, necrosis, regeneration of liver cells, periportal sclerosis, infiltration with chronic inflammatory cells, classical miliary tubercles, and amyloid deposits. One or more of these changes was observed in 45 of 59 patients in whom successful biopsies were performed. A definite correlation between structural and functional changes in the liver seemed to exist.

Fatty infiltration, periportal sclerosis, necrosis and regeneration of cells, and infiltration with chronic inflammatory cells are presumably the result of the toxicity associated with pulmonary tuberculosis. It has been suggested that this toxicity might indirectly lead to cirrhotic changes in the liver in some instances. As such structural changes in the liver were absent in the non-tuberculous group, it is probable that nutrition does not play any direct role in their production.

The hepatic damage did not bear any relation to the duration of the pulmonary tuberculosis. S. J. SHANE

On the Pathology of Primary Cancer of the Lung. Part I. On the Histogenesis of Lung Cancer.

TAUCHI, H.: NAGOYA MED. J., 3: 1, 1955.

About 400 autopsy cases of primary cancer of the lung were used in this survey. Ten different histological "pictures" are described and illustrated, and several of these may appear in the same part, connected by transitional areas. Classification is established by the most abundant picture in a case. These lung cancers arise from four types of basal cells which in turn come from the short spindle-shaped low-lying reserve cells of the bronchial epithelium. Most pictures arise from basal cell type I. The small spindle-celled cancer comes from basal cell types II and III, and the rare small round-celled cancer from basal cell Type IV. The precancerous or unstable condition of the epithelium *(Unruhe)* may arise from endogenous or dispositional, as well as exogenous, factors. C. C. MACKLIN

On the Pathology of Primary Cancer of the Lung. Part II. On the Mechanism of Formation of Intrapulmonary Metastasis and on the So-called "Alveolar Cell Tumour."

TAUCHI, H.: NAGOYA MED. J., 3: 25, 1955.

Intrapulmonary metastasis is more often seen with lung cancers than with other cancers. Metastases of primary lung cancer in its own lung arise mainly by transit of cancer cells to the hilar and peribronchial lymph nodes, thence to the local venous plexus and from there to the

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right ventricle and pulmonary artery, the cells lodging in the arterioles and alveolar capillaries. However, many cancer-cell emboli in the lung degenerate. Fibrosis and hyalinization in pulmonary arteries and interalveolar capillaries occur more frequently in cancer than in other diseases. Fewer metastases are set up by cells travelling *via* the air tubes. Alveolar cell tumours are regarded as primarily single and as forming metastases as above. These findings are based on many autopsy cases and some mouse lungs containing cells from intravenously injected Ehrlich's ascites cancer. C. C. MACKLIN

The Middle Lobe Syndrome. A Review of the Anatomic and Clinical Features.

EFFLER, D. B. AND ERVIN, J. R.: AM. REV. TUBERC., 71: 775, 1955.

A chronic suppurative process localized to the middle lobe is being recognized with increasing frequency. The term "middle lobe syndrome" is gaining acceptance as a designation for this condition.

The pathological features of the middle lobe syndrome include several distinct phases. Mechanical obstruction of the middle lobe bronchus by hyperplastic lymphadenitis initiates the first phase of obstructive pneumonitis. If the obstructive phase is short, the bronchus may reopen and, when irreversible changes have not occurred, complete function may return; the clinical course in such a case is not unlike that in pneumococcal pneumonia. When bronchial occlusion persists beyond the point of pulmonary recovery, the diseased lobe may remain airless and contracted, presenting the classic picture of middle lobe syndrome. A third possibility exists, and it is believed that it offers the explanation of the occasional finding of severe bronchiectasis localized only to the right middle lobe or to the lingula. In these cases, bronchial occlusion may be relieved and the lung re-aerated, even though the critical point of pulmonary recovery has been passed. In these instances, nonfunctioning bronchiectatic lobes remain, even though the bronchial occlusion is no longer a conditioning factor.

Whether the middle lobe remains airless and contracted, or expanded and bronchiectatic has little bearing on the clinical course; in either case, the patient is subject to the same symptoms and complications.

Diagnosis of the middle lobe syndrome, or its counterpart in the lingula of the left upper lobe, can be made by clinical suspicion, routine roentgenography, bronchoscopy, and bronchography. In an overwhelming majority of cases, the therapy will be surgical and the prognosis should be excellent. S. J. SHANE

SURGERY

The Importance of Technique in Cholecystectomy.

GLENN, F.: SURG., GYNEC. & OBST., 101: 201, 1955.

Cholecystectomy, which was first described by John S. Bobbs in 1869, is now probably one of the most frequently performed operations. At New York Hospital over 5% of all operations are for biliary tract disease, and of these more than 90% are cholecystectomies. It stands to reason that the more frequently a procedure is employed, the greater the need for making it as simple and safe as possible for the patients. Biliary tract operations are done in both large and small centres, and the actual number performed is probably greater in the smaller hospitals, by a larger number of surgeons, with a wider range of capability. The smaller centres do not as commonly publish their experiences as do the larger hospitals. One may then reasonably question whether the improved published results of the past 10 years are shared equally by the large and small hospitals.

At New York Hospital, patients who were admitted to surgery with recurrent symptoms, after having been operated on previously, were usually found to have one of two complications. These were common duct injury or residual cystic duct remnant. Both conditions are the result of technical errors. No surgeon wilfully intends to injure a common duct, but all who attempt cholecystectomy must fully realize the seriousness of the possible complications.

The writer points out the common pitfalls that he has encountered from personal experience and investigation. A series of recommendations for all those wishing to perform safe biliary surgery is given, and a safe technique for removing the gallbladder is discussed. While the author favours retrograde dissection of the gallbladder from the fundus towards the cystic duct, in order to deal adequately with both the cystic artery and the cystic duct, he emphasizes that the surgeon himself is of greater importance than any technique. Nevertheless, adherence to the principles and technique outlined would enable even the less expert to do a complete cholecystectomy with greater safety.

ALLAN D. POLLOCK

Coarctation of the Aorta with Special Reference to the First Year of Life.

MUSTARD, W. T. *et al.*: ANN. SURG., 141: 429, 1955.

In a review of 90 cases of coarctation of the aorta at the Hospital for Sick Children in Toronto, the special problems relating to preductal and postductal aortic stenosis in infants under one year of age are discussed.

In the postductal type there were 11 cases over one year and 4 cases under one year old, with one postoperative death. Among the 9 preductal cases there were 5 deaths, and these infants showed a high incidence of other congenital defects. The results in the clearing of heart failure and resumption of physical activity were satisfactory. It is particularly advisable to operate on babies with the coarctation above the ductus arteriosis early, for there is an 89% mortality in the first year. Sometimes it is necessary to operate on such infants as an emergency when the heart failure becomes suddenly worse and the response to digoxin is poor. Potentially fatal cases of postductal stricture should be operated upon, for the mortality rate is 60% in the first year.

Because of doubt whether the anastomosis grows with the child's growth, cases in which delay was possible have not been operated upon until the patient was 10 to 15 years of age. BURNS PLEWES

Cardiac Tamponade.

FARRINGER, J. L. AND CARR, D.: ANN. SURG., 141: 437, 1955.

If cardiac tamponade is suspected in every patient who has a wound that might have reached the heart, many will survive through aspiration of the pericardium. The signs of shock out of proportion to the apparent wound, narrow pulse pressure, cyanosis, distant heart sounds and distended neck veins may not all be present. Lack of cardiac pulsation is noted with the fluoroscope, but there may not be time for consultation and x-rays. Distended neck veins, shock and a confused state may lead to aspiration without other evidence.

Immediate aspiration rather than immediate thoracotomy has resulted in a marked decrease in mortality in Memphis. Often operations to perform cardiorrhaphy show bleeding to have stopped by the time the heart is exposed. Operations should be performed on patients who relapse after two or more pericardial aspirations.

BURNS PLEWES

Diaphragmatic Respiration in the Quadriplegic Patient and the Effect of Position on His Vital Capacity.

CAMERON, G. S. *et al.*: ANN. SURG., 141: 451, 1955.

Patients who are paralyzed because of a fracture dislocation of the cervical spine may live happily and usefully but are in constant danger from pulmonary atelectasis, for they maintain respiration with the diaphragm alone. The vital capacity is reduced to 65% of normal. Atelectasis and pneumonia may be prevented by postural drainage with the patient tilted 15° head down. In this position the vital capacity is 6% greater than when horizontal and 13% greater than when tilted 15° head up.

It is suggested that similar principles apply to anæsthetized patients. BURNS PLEWES

THERAPEUTICS

A Re-evaluation of Sulfonamide Therapy.

YOW, E. M.: ANN. INT. MED., 43: 323, 1955.

With the advent of penicillin and subsequently discovered antibiotics, it was quite understandable that there would be a decreased interest in the sulfonamides, after several trying years of careful dosage regulation so as to maintain an effective plasma level and yet remain within the relatively narrow margin between toxic and therapeutic levels. Physicians were anxious to forget the difficulties encountered in the administration of large amounts of fluid and alkali, given in an attempt to prevent the precipitation of crystals in the renal tubules. The problems of agranulocytosis, aplastic anæmia, hæmolytic anæmia, jaundice, dermatitis, drug fever and collagen disturbances seemed to be things of the past.

In spite of the tremendous success of the antibiotics, problems soon began to appear. These included hypersensitivity reactions to penicillin, acoustic nerve damage from streptomycin, gastrointestinal disturbances and monilial infections from the tetracycline group, and blood dyscrasias from chloramphenicol. These reactions to antibiotics have again focused our attention, to a certain degree, on the sulfonamides.

Naturally, these chemotherapeutic agents will never again be used as extensively as they were prior to the introduction of antibiotics. However, the writer feels that they still have a place in therapy. In particular, it is his opinion that sulfisoxazole (Gantrisin), sulfadimidine (Elkosin) and sulfamethylthiadiazole (Thiosulfil) have been and will be of great value under certain specific circumstances. He lists certain diseases in which sulfonamides are as effective as antibiotics, including meningococcal infections and shigella dysentery. He also notes certain diseases in which sulfonamides are usually effective, such as urinary infections due to coliform bacilli. In addition, he indicates that there are certain diseases in which sulfonamides are of distinct value in combination with antibiotics, such as actinomycosis, *H. influenzæ* infections and Brucella infections. Finally, he stresses the fact that sulfonamides are occasionally very valuable in infections with proteus, pseudomonas and the salmonella group.

It would appear, therefore, that in the rush to "get on the antibiotic bandwagon" the sulfonamides have been grossly neglected. The writer stresses that in addition to the specific value of sulfonamides in certain infections, the cost of sulfonamide therapy in any specific illness is usually a small fraction of the cost of any form of antibiotic therapy.

There appears to be little doubt that the development of the more soluble sulfonamides and the sulfonamide mixtures has virtually eliminated the most frequent of the serious toxic effects, that is the formation of crystals in the renal tubules, producing hæmorrhage and obstruction. S. J. SHANE

Treatment of Genito-urinary Moniliasis with Orally Administered Nystatin.

SAREWITZ, A. B.: ANN. INT. MED., 42: 1187, 1955.

The widespread use of broad-spectrum antibiotics has intensified the problem of clinical infections caused by *Candida albicans*. Nystatin is an antifungal substance produced by the growth of a soil actinomycete, *Streptomyces noursei*. Investigations have demonstrated a remarkable ability of this drug to clear or reduce *Candida albicans* from the intestinal tract. While the oral administration of this drug has been shown to control effectively the yeast-like flora of the intestinal tract, there has been no previous report of the effect of this drug outside the gastrointestinal tract when given by mouth.

This paper reports five cases of genito-urinary moniliasis, all of which were treated with orally administered Nystatin. In each case there was rapid response with marked improvement of the symptoms. Objective improvement was less prompt and less complete. There was a high incidence of relapse when the medication was discontinued. Retreatment was as successful as the initial courses of therapy. No adverse reactions to the drug were noted.

It is suggested that Nystatin be given a clinical trial in cases of moniliasis both in and outside the gastrointestinal tract. S. J. SHANE

Treatment of Acute Leukæmia.

SCOTT, R. B.: BRIT. M. J., 2: 75, 1955.

It has recently become possible to influence the course of acute leukæmia. Methods of treatment at present available are reviewed and their application and value are discussed in the light of experience gained in the past six years with a total of 121 patients with acute myeloblastic leukæmia, acute lymphoblastic leukæmia and acute monocytic leukæmia. Acute leukæmia remains fatal; the only prognostic question is whether remission will occur. This is more likely in children under 12 years and in the lymphoblastic variety, particularly of pure medullary type. The length of survival in acute leukæmia is variable.

Management varies with the age of the patient, with the cytological and clinical type of the disease, and with the severity of the illness.

In a child, when high fever and hæmorrhagic state indicate rapidly advancing disease, a start should be made with cortisone by mouth or with corticotrophin by intravenous drip. Antimetabolites may be used concurrently, but are better reserved for the first signs of relapse. If the child's condition suggests that he is likely to survive for more than three weeks, antimetabolites should be given preference. It is advisable to use 6-mercaptopurine rather than a folic acid antagonist, because its toxic effects are negligible; a change should be made to the second if the disease proves resistant to the first. By employing the various "specific" measures in sequence, changing from one to the next as resistance develops, repeated remissions may be induced in favourable cases. Maintenance treatment, once remission is achieved, has not proved satisfactory, and "specific" drugs are best withheld until the onset of relapse is evident. The first sign of this event is an increase in primitive cells in the bone marrow, but most workers prefer to await changes in the peripheral blood rather than subject children to repeated bone-marrow puncture.

In adults, 6-mercaptopurine should be given a trial if the patient's general condition is satisfactory. It may be combined with or followed by cortisone. The alternative is to watch the effect of blood transfusion alone for a period of two or three weeks; in 15 to 20% of patients

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it will induce a satisfactory remission. In lymphoblastic and myeloblastic leukæmia, cortisone should be given if it becomes apparent that neither blood transfusion nor 6-mercaptopurine is likely to be effective. Monocytic leukæmia is resistant to cortisone, but occasional cases respond to 6-mercaptopurine. The folic acid antagonists have no place in the treatment of acute leukæmia in adults.

B. L. FRANK

Paradoxical Action of Glyceryl Trinitrate (Nitroglycerin) in Coronary Patients.

RUSSEK, H. I., URBACH, K. F. AND ZOHMAN, B. L.: J. A. M. A., 158: 1017, 1955.

A study of the effect of varying doses of nitroglycerin, 1/300 to 1/50 grain, on the electrocardiographic response to the Master two-step test was undertaken in 158 patients with coronary disease who showed consistently positive changes in control studies. It was found that with a dose of 1/150 grain sublingually five minutes before exercise 131 patients (83%) responded favourably, 11 patients (7%) showed no significant effect from the drug and 16 patients (10%) demonstrated similar but more profound abnormalities than were apparent in the electrocardiographic records of control tests. Among the 131 patients responding favourably to 1/150 grain there were 16 who showed less dramatic results or a paradoxical response when larger doses of nitroglycerin were employed, that is, 1/100 to 1/50 grain. This paradoxical response to nitroglycerin is probably caused by venous pooling in the lower extremities, since it has been shown that capillaries and venules are more markedly dilated than arterioles by the administration of sodium nitrite. This results in a diminished venous return to the heart and reduced coronary flow in spite of concomitant coronary vasodilatation. It was found in some instances that change from recumbent to erect posture produced electrocardiographic alterations similar to those evoked by nitroglycerin. Elastic bandages on the lower extremities prevented the changes occurring on standing and to a lesser extent those induced by nitrogylcerin. The use of such bandages in cases of angina pectoris was suggested. The action of nitroglycerin on the venous return may have therapeutic application in the treatment of acute congestive heart failure since decrease of venous return is an important objective of therapy in such patients. The precipitation of acute myocardial infarction is more than a theoretical danger from overdosage with nitroglycerin during the treatment of the anginal attacks. Individualization of dosage for each patient is important. Optimum dose for most patients is 1/300 to 1/200 grain sublingually.

N. W. MCQUAY

RADIOLOGY

The Detection of Carcinoma of the Lung by Screening Procedures, Particularly Photofluorography.

GARLAND, L. H.: AM. J. ROENTGENOL., 74: 402, 1955.

A careful study of the reported results of many routine photofluorographic chest surveys indicates that about 10 cases of bronchogenic carcinoma will be detected for every 100,000 persons examined. The most experienced interpreters of such films will miss about one in four carcinomas actually present. False-positive reports are common. If these routine chest surveys of the general population are to be of any practical value, they must be accompanied by a highly organized system of prompt and adequate investigation and treatment of cancer suspects.

At the present time there is no practical method of routine survey of the population for the detection of bronchial carcinoma because of the low incidence of resectable cases discovered and because of the small percentage of resectable cases cured. The most effective method would be the semi-annual roentgen examination of persons over the age of 45 (notably of heavy smokers?), but again the practical results would be so small that such a survey cannot be recommended to the general public.

NORMAN S. SKINNER

The Roentgen Signs of Carcinoma of the Lung.

RIGLER, L. G.: AM. J. ROENTGENOL., 74: 415, 1955.

Roentgen examination is the most effective method of detecting carcinoma of the lung. Routine postero-anterior and lateral films will detect most, but not all, of such malignancies. While most lung carcinomas are radiologically detectable, they do not appear as a characteristic entity but may simulate almost any chest condition. The solitary lung lesion is the most easily identified and the localized nodule should be subjected to intensive investigation, including bronchoscopy, sputum examination for malignant cells and body-section radiography. If doubt still exists as to the possibility of malignancy after such intensive investigation, exploratory thoracotomy is indicated. If a solitary nodule within the lung can be demonstrated to contain calcium, the chances are strongly against malignancy.

The roentgenographic appearance of malignancy may simulate that of any lung lesion—pneumonia, atelectasis, abscess, localized emphysema or hilar enlargement all being common presenting forms. Any radiographic chest abnormality should be carefully followed until it disappears or has been proved to be non-malignant. The proof that an abnormal process in the lung is benign will frequently necessitate exploratory thoracotomy.

NORMAN S. SKINNER

INDUSTRIAL MEDICINE

The Estimation of Health Hazards from Air Pollution.

HEMEON, W. C. L.: A. M. A. ARCH. INDUST. HEALTH, 11: 397, 1955.

Attacks of acute respiratory distress under "smog" conditions are well known. Aerosol sampling is used in this investigation to determine the nature of the air pollutant during these episodes.

Atmospheric pollution of large cities is shown to be composed largely of particulate matter with traces of certain gases, such as sulphur dioxide. The larger portion of the particulate matter consists of omnipresent irrespirable particles, and light scattering measurements are used to eliminate their masking effect. Spectrographic examination of "smog" solids is unilluminating in identifying the irritant. The suggestion that gases are adsorbed on the surfaces of fine particulate matter inhaled deeply into the lungs is shown experimentally to be untenable.

The author proposes the concept that any substance producing major irritation of the respiratory tract must do so by solution in the fluids of the respiratory system. Examination of the water-soluble fraction of "smog" samples from two such widely separated places as Donora, Pennsylvania, and London, England, has shown them both to be rich in sulphates and chlorides of ammonia. Fumes of these substances are known to be irritating on inhalation, and indeed are often met with industrially where sal ammoniac is used as a flux.

It is suggested that sulphur dioxide is only significant after it has been oxidized and produced, following neutralization, ammonium and metallic salts. Ammonia, sulphur, chlorides and various metals are commonly present in coal smoke, which would appear to substantiate the conclusions arrived at by the author.

J. D. MEDHURST.

OBITUARIES

DR. LEONARD L. DERBY of Ottawa died there on September 22 after a long illness. He was 69.

Dr. Derby was born at Plantagenet, Ont., where he attended school. He continued his studies at McGill University, from which he graduated in 1912. After practising in Rockland, Ont., for two years, he moved to Ottawa where he carried on his practice for 38 years, retiring in 1953. He had been a member of the obstetrical and gynæcological staff of the Ottawa Civic Hospital.

Surviving are his widow, and a son and daughter.

DR. ARTHUR DESJARDINS, widely known physician of the town of Gracefield and the Gatineau area of Quebec, collapsed and died at his office on September 8. He was 69.

Dr. Desjardins was born at St. Janvier, Que. He studied medicine at the University of Montreal, from which he graduated in 1910. After an internship at Maniwaki, he settled in Gracefield, where he practised for 42 years. Seven years ago, on the 35th anniversary of his service, the entire community participated in a demonstration of their affection for him. In spite of the arduous professional pace that he set for himself, Dr. Desjardins took part in many community affairs. He had served for two years as mayor of Gracefield, as a member of the school board, and as president of the Board of Trade.

Dr. Desjardins is survived by his widow, three sons and three daughters.

DR. DAVID FRAME, graduate of McGill University Medical School, died in St. Louis, Mo., in September. He was 30. A veteran of World War II, Dr. Frame was educated at the College of Puget Sound, Tacoma, Wash., and the University of Missouri before entering McGill. At the time of his death he was an intern in St. Louis County Hospital, where he had been since July.

Dr. Frame is survived by his widow, his parents, two sisters, and two brothers.

DR. DAVID R. GRANT, 58, of Red Deer, Alta., died suddenly on September 15. Dr. Grant, who was born in Ontario, had been in practice in Red Deer for the past 12 years. He was chairman of the Red Deer Red Cross Society.

DR. J. ARTHUR JARRY, one of the founders of the Institut Bruchesi, died in Montreal on September 17 at the age of 78. Dr. Jarry was the first professor of tuberculosis at the University of Montreal and chairman of the faculty for many years, until his retirement in 1947. Born in Montreal in 1877, he graduated from Laval University and later took postgraduate study in New York and Paris. Dr. Jarry returned to Montreal in 1906 and set up a private practice. Five years later he took a leading part in the foundation of the Institut Bruchesi and became the first director. He retired in 1948 and was succeeded by his son, Dr. Gaétan Jarry, M.B.E. He is survived by a son and a daughter.

DR. JOHN GUY WATTS JOHNSON, former chief surgeon of the Montreal General Hospital, died in that hospital on September 22. He was 74.

Dr. Johnson, who was born in Montreal, was the son of the late Dr. Alexander Johnson, vice-principal of McGill University. He obtained his arts degree at McGill University in 1900 and graduated in medicine four years later. After interning at the Montreal General Hospital, he took postgraduate studies in London and Dublin before going to Mexico, where he was a medical officer for four years. Shortly after the outbreak of World War I he went overseas with the first Canadian contingent, and served for five years in Europe and the Middle East. He returned to Canada with the rank of lieutenant-colonel, and joined the staff of the Montreal General Hospital. In 1944 he was named chief surgeon, a post he held until 1947, when he retired from hospital practice. He was a Fellow of the Royal College of Surgeons (Edinburgh) and of the Royal College of Surgeons of Canada.

Dr. Johnson is survived by his widow and a daughter.

DR. JOSEPH LAURIE LAMONT, 64, died on September 25 in the Winnipeg General Hospital. Born at Treherne, where his father Dr. T. J. Lamont practised for many years, he was educated there, then graduated in science from the University of Manitoba in 1911, and in medicine from Edinburgh University in 1917 with honours.

After graduation he joined the Royal Navy as a medical officer, serving until the conclusion of the First World War. He then returned to Treherne, practising medicine until the outbreak of the Second World War when he joined the R.C.A.F. and was stationed for a time at Halifax. In 1941 he returned to Winnipeg to become district medical officer in the Department of Veterans' Affairs. He retired in December 1948 because of ill health.

He is survived by his widow, one son (Dr. Thomas Lamont, now practising at Tillsonburg, Ont.) and three sisters.

DR. LEOPOLD LAMOUREUX, a member of the board of governors of the College of Physicians and Surgeons of the Province of Quebec, died in the Nôtre-Dame Hospital, Montreal, on October 2 after a short illness. He was 65.

After graduating in medicine from the University of Montreal, Dr. Lamoureux took postgraduate work in Misericordia Hospital, New York, before establishing a practice in the St. Vincent de Paul section of Montreal. He was on the medical staff of Nôtre-Dame Hospital for 15 years, and was associated with the Gamelin Shelter of the Sisters of Providence for 25 years. He was one of the founders of the parochial milk depots.

He is survived by his widow, two sons, and a daughter.

DR. JOHN BOYD STORY, a general practitioner of Vancouver, died in that city on September 9 at the age of 57.

Dr. Story, who was born in Wawanesa, Man., moved to Vancouver in 1910 but returned to Manitoba to attend the University, from which he graduated in medicine in 1923. He was in practice in Shaunavon, Sask., from 1923 to 1937, when he returned to Vancouver.

Dr. Story is survived by his widow, two sons, a brother, and three sisters, one of whom is Dr. Gladys Cunningham of Vancouver.

DR. MORTON TORRANCE, 55, former resident of the Listowel, Ont., district, died suddenly at his home in Harpersville, N.Y., on September 25. He was a graduate of the University of Toronto and had practised in Pittsburgh and New York before going to Harpersville.

Dr. Torrance is survived by his widow.

DR. DIGBY WHEELER of Winnipeg died suddenly on September 20 while returning from Philadelphia. He was born in Brantford, Ont., on August 27, 1892, and graduated in arts from the University of Toronto in 1913, then went to Winnipeg. In 1914-15 he was the first holder of the Physiology Research prize and in 1916 he graduated M.D., C.M. from Manitoba Medical College. He went overseas with the R.C.A.M.C. and took postgraduate work in London. On his return he engaged briefly in general practice, then practised radiology, first with the late Dr. J. C. McMillan, next independently and later as the head of a firm.

While acting as radiologist to St. Boniface Hospital, with which he was connected from 1915 until his death,

he and Dr. E. W. Spencer developed the planigraph which adds the third dimension to the x-ray picture. In addition to being head of the radiology departments of St. Boniface, Misericordia, Grace, Victoria and the Shriners' hospitals, he was consulting radiologist to the Department of Veterans' Affairs, Military District No. 10, and the Canadian National Railway.

From 1919 he taught in the Faculty of Medicine as demonstrator and lecturer in anatomy, then in medicine and radiology. His Sunday morning reviews of the week's interesting cases at St. Boniface Hospital were pleasant and profitable. In 1947 he became Professor of Radiology in the University of Manitoba and in 1953 he retired with the rank of Professor Emeritus.

His scientific honours included membership in the Canadian College of Radiologists and fellowships in the Faculty of Radiologists, London, the Royal College of Physicians and Surgeons, Canada, and the International College of Surgeons. He was treasurer of the Manitoba Medical Association in 1937, president of the Winnipeg Medical Society (1940-41) and honorary life member (1955), treasurer of the College of Physicians and Surgeons of Manitoba 1945-46, and a member of the executive of the Medical Arts Building from 1945 till his death. He attended international congresses of radiology at Chicago, London and Copenhagen.

In addition to his medical activities he was interested in horticulture and music. For many years the garden at his home near Deer Lodge Hospital was a show place, and in 1953 and 1954 he was president of the Winnipeg Symphony Orchestra.

He is survived by his widow, a sister, two brothers and several nephews, one of whom is Dr. Gilbert Wheeler, now of Deer Lodge Military Hospital.

FORTHCOMING MEETINGS

CANADA

CANADIAN PUBLIC HEALTH ASSOCIATION, Laboratory Section, Annual Christmas Meeting, Royal York Hotel, Toronto, Ontario. (Dr. F. O. Wishart, Secretary, Laboratory Section, C.P.H.A., 150 College St., Toronto 5.) December 12-13, 1955.

CANADIAN ASSOCIATION OF RADIOLOGISTS—19th annual meeting, Hotel Vancouver, Vancouver, B.C. (Dr. H. Brooke, Hycroft Medical Building, Granville St. at 16th Ave., Vancouver, B.C.) January 16-18, 1956.

SOCIETY OF OBSTETRICIANS AND GYNÆCOLOGISTS OF CANADA—1956 Annual Meeting, Manoir Richelieu, Murray Bay, Quebec. (Dr. F. P. McInnis, Secretary, Society of Obstetricians and Gynæcologists of Canada, 1230 Avenue Road, Toronto, Ont.) June 8-10, 1956.

CANADIAN MEDICAL ASSOCIATION, 89th Annual Meeting, Ecole de Commerce, Quebec, Quebec. (Dr. A. D. Kelly, General Secretary, Canadian Medical Association, 244 St. George Street, Toronto 5, Ont.) June 11-15, 1956.

UNITED STATES

INTER-SOCIETY CYTOLOGY COUNCIL, 3rd Annual Meeting, Statler Hotel, Cleveland, Ohio. (Dr. P. F. Fletcher, Secretary-Treasurer, 634 N. Grand Blvd., St. Louis 3, Mo.) November 11-12, 1955.

AMERICAN PUBLIC HEALTH ASSOCIATION, INC., 83rd Annual Meeting and Meetings of Related Organizations, Kansas City, Missouri. (The American Public Health Association, Inc., 1790 Broadway, New York 19, N.Y.) November 14-18, 1955.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, Annual Convention, Palmer House, Chicago, Illinois. (Director of Information, 11 South LaSalle Street, Chicago 3.) November 28-30, 1955.

NEW YORK HEART ASSOCIATION, Conference on Rheumatic Fever and Heart Disease, Biltmore Hotel, New York, N.Y. (New York Heart Association, 485 Fifth Avenue, New York 17.) November 29, 1955.

AMERICAN MEDICAL ASSOCIATION, Clinical Meeting, Boston, Massachusetts. (Dr. George F. Lull, 535 North Dearborn Street, Chicago 10, Illinois.) November 29-December 2, 1955.

AMERICAN PSYCHOSOMATIC SOCIETY, 13th Annual Meeting, Sheraton-Plaza Hotel, Boston, Massachusetts. (Dr. S. Cobb, Chairman, Programme Committee, 551 Madison Avenue, New York 22, N.Y.) March 24-25, 1956.

INTERNATIONAL ANÆSTHESIA RESEARCH SOCIETY CONGRESS, Flamingo Hotel, Miami Beach, Florida. (Dr. T. H. Seldon, Mayo Clinic, Section on Anæsthesiology, Rochester, Minn.) April 9-12, 1956.

WORLD CONFEDERATION FOR PHYSICAL THERAPY, Second International Congress, New York, N.Y. (Miss M. J. Neilson, Secretary-General, c/o Chartered Society of Physiotherapy, Tavistock House South, Tavistock Square, London, W.C.1, England.) June 17-23, 1956.

OTHER COUNTRIES

SOCIETE D'OPHTHALMOLOGIE DE FRANCE, Bordeaux, France. (Dr. E. Bessiére, 9 rue Hustin, Bordeaux.) November 12-13, 1955.

BRITISH TUBERCULOSIS ASSOCIATION, Manson House, 26 Portland Place, London W.1, England. (The Secretary, B.T.A., 59 Portland Place, London, W.1.) November 18, 1955.

SIXTH VENEZUELAN CONGRESS OF MEDICAL SCIENCES, Caracas, Venezuela. (Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela.) November 18-26, 1955.

BRITISH ASSOCIATION OF SPORT AND MEDICINE—Meeting, St. Thomas's Hospital, S.E.1, London, England. (Dr. D. J. Cussen, British Association of Sport and Medicine, 95 Mount Street, London, W.1.) November 21, 1955.

BRITISH ASSOCIATION OF PLASTIC SURGEONS, Annual Meeting, London, England. (British Association of Plastic Surgeons, 45 Lincoln's Inn Fields, London, W.C.2.) December 9-10, 1955.

PHYSIOLOGICAL SOCIETY—Meeting, London, England. (Professor A. A. Harper, Department of Physiology, King's College, Newcastle-upon-Tyne 1, England.) December 16-17, 1955.

INTERNATIONAL CONGRESS FOR THE SOCIAL REHABILITATION OF THE LEPER, Rome, Italy. (M. F. Sarsale, International Congress for the Rehabilitation of the Leper, Via Condotti, Palazzo Malta, Rome.) April 16-18, 1956.

NEW ORAL AGENT FOR DIABETES

As we go to press, the first reports are to hand of clinical trials in Berlin and Hamburg of a new sulfonamide, which is claimed to be the first reliable orally effective antidiabetic agent. Preliminary work on this drug, BZ 55 or N_1-Sulfanibyl-N_2-n.-butylcarbamide, has given encouraging results in a majority of older diabetics. A fuller account will be given in the editorial columns of our November 15 issue.

NEWS ITEMS

BRITISH COLUMBIA

The 500-bed addition to the Vancouver General Hospital, so long awaited, has been started and foundations are now being laid. The plans include a new laboratory and laundry.

The additions for the use of the University of British Columbia medical school are also proceeding rapidly.

Dr. R. G. Large of Prince Rupert has been elected Grand Master of the Masonic Order in British Columbia. This represents 150 lodges throughout B.C., with a total membership of 24,000. This meeting was the first that the Grand Lodge had held in Prince Rupert since 1922.

Dr. John Nay of Vancouver, who died recently, was for many years chief medical officer of the Workmen's Compensation Board of British Columbia. He was appointed to the position in 1922, five years after the Workmen's Compensation Board went into office, under the chairmanship of Mr. E. H. Winn.

Dr. Nay held the position till two years ago, when ill health forced his retirement. He was an extremely efficient Chief Medical Officer, and had the respect and esteem of the whole medical profession of the province.

The pharmaceutical firm of Merck & Co. in Montreal has given a grant to the University of British Columbia of $4,500 for citric acid research—especially as regards the production of citric acid from sugars by the action of micro-organisms. This is the second grant made by this firm, a similar amount having been given a year ago.

Dr. Alan M. Inglis of Vancouver has been awarded the $1,500 Savage Shoe Co. fellowship, given annually by this company to the Faculty of Medicine of the University of British Columbia for special study of foot health problems among children.

Dr. Arthur W. Bagnall of Vancouver has returned from Brazil, where he attended the first Pan-American Congress on Rheumatic Diseases. He was a delegate of the Canadian Rheumatism Association, of which he is a past president. Dr. Bagnall delivered a paper on the shoulder syndrome.

Dr. E. N. C. McAmmond of Vancouver was another representative of the city at overseas conventions. In May he read a paper by invitation before the Proctological Division of the Royal Society of Medicine, on diverticulitis, while on May 26 he read another paper on pneumatosis cystoides intestinalis before the International College of Surgeons at their convention in Geneva.

Powell River General Hospital reports progress in the raising of a fund for adding a chronic diseases wing to the hospital. To date $75,000 has been pledged and the objective is $135,000. The federal and provincial governments will contribute $271,000 to the project, but the $135,000 sum must be raised first.

Hospital growth is steady—the North Vancouver General Hospital is planning a $200,000 addition, and Mount St. Joseph Hospital in Vancouver has a new wing under construction.

SASKATCHEWAN

A great deal of interest is being exhibited, both by lay and medical groups in Saskatchewan, in briefs advanced for four health regions in Saskatchewan. From these briefs it would appear that medical care plans based on the present Swift Current Scheme are proposed. The physicians in the areas concerned have so far gone on record stating their approval of prepaid medical care if based on principles accepted by the C.M.A., and their disapproval of the introduction of additional schemes based on the Swift Current system in operation.

As an alternative they have suggested that in the event that a prepaid medical care plan is approved by the voters, negotiations be entered into with the voluntary plans now existing in Saskatchewan so that a plan acceptable to those providing and those receiving the services may be developed. Physicians feel that the voluntary plans with all their provincial medical members and their association with T.C.M.P. could provide a much more acceptable and efficient type of service than a region could. They also feel that the services could be provided at the same or less cost to the taxpayer.

A postgraduate course and symposium on rehabilitation is being actively planned for January or February. This will be held in Saskatoon under the sponsorship of the Educational Committee of the College of Physicians and Surgeons of Saskatchewan, the College of Medicine at the University of Saskatchewan and the Provincial Department of Public Health, together with the Provincial Department of Social Welfare.

Following difficulties which have been brought to the attention of the College of Physicians and Surgeons concerning the Nôtre Dame Hospital at North Battleford, the Council of the College has requested the Minister of Public Health, the Honourable T. J. Bentley, to carry out an investigation into various administrative and other procedures in connection with the above-mentioned institution. At this time it is understood that the services of a qualified person capable of carrying out a medical audit are being sought by the Department of Public Health.

The Annual Convention of the College of Physicians and Surgeons and the Saskatchewan Division of the Canadian Medical Association was held at the Hotel Saskatchewan, Regina, on October 18-21. The Council of the College met on October 16, and the Central Health Services Committee on October 17. A pre-convention coffee party was held on Monday evening. The convention closed on October 21, when a golf tournament and competition for two cups was held.

G. W. PEACOCK

ONTARIO

Dr. and Mrs. E. K. Lyon, Leamington, have been to Vienna, where Dr. Lyon attended the Conference of the World Medical Association from September 19 to 27, as an official delegate of the Canadian Medical Association.

At the O.M.A. district meeting held in Windsor on September 28 and 29, Dr. L. DeWitt Wilcox, senior associate in medicine, University of Western Ontario, held a clinical conference in the morning, and in the afternoon spoke on "The Doctor, the Soma, and the Psyche". Dr. Conrad G. Collins of the Department of Obstetrics and Gynæcology, Tulane University, New Orleans, spoke on "Management of Toxæmias of Pregnancy" and on "Ectopic Pregnancy"; Dr. Marion DeWeese, associate professor of surgery, University of Michigan, Ann Arbor, spoke on "Splenoportography" and on "Pancreatitis". The dinner speaker was Dr. J. C. C. Dawson, Peterborough, President-Elect, Ontario Medical Association.

At the O.M.A. district meeting held in Barrie on September 21, Dr. Paul McGoey, staff surgeon, St. Michael's Hospital, and surgical instructor, University of

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Toronto, spoke on "Recent Advances in Orthopædic Surgery of Interest to the General Practitioner". Dr. G. E. Hobbs, professor of psychiatry and preventive medicine, University of Western Ontario, gave an address on "Psychosomatic Medicine". Dr. B. H. G. Curry, chief medical officer, Workmen's Compensation Board, talked on "Day-to-Day Problems". The dinner speakers were Dr. J. C. C. Dawson and Mr. G. Arthur Martin, Q.C.

The Port Arthur-Fort William District had a three-day meeting. It began with a panel discussion of Diagnosis and Management of Recurrent Upper Abdominal Pain moderated by Dr. A. Hargan, Port Arthur, with Dr. W. T. Foulk and Dr. George Davis of the Mayo Clinic and Dr. Bruce Tovee, Department of Surgery, University of Toronto, as collaborators.

Another panel discussion was on "Investigation and Management of the Patient passing Blood in the Stool" moderated by Dr. James Markham, Fort William, with the same collaborators as on the former panel. Dr. Davis also gave addresses on "Intravenous Cholangiography in Cholecystectomized Patients", "The Significance of Solitary Pulmonary Nodules on Chest Roentgenograms" and "Translumbar Aortography."

Dr. Foulk spoke on "Peptic Ulceration at the Outlet of the Stomach", "The Differential Diagnosis of Deep Painless Jaundice", and "Hepatic Coma".

Dr. Tovee spoke on "Surgical Complications in Obstetrics and Gynæcology", "Certain Aspects of Gallbladder Disease" and "Late Results in the Surgical Treatment of Chronic Duodenal Ulcer."

Dr. J. L. Johnston, Toronto, spoke on "The Workmen's Compensation Board", and Mr. R. D. Beaman, manager, Hospital Division, Blue Cross Plan for Hospital Care, spoke on "Blue Cross and the Doctor".

Doctors and their wives enjoyed an afternoon harbour cruise aboard the S.S. Coastal Queen, an afternoon of golf, and a dinner dance.

At Sault Ste. Marie a get-acquainted party was held on the evening before the two days of meetings began.

Dr. Edwin M. Robertson, Professor of Obstetrics and Gynæcology, Queen's University, spoke on "Recent Advances in Prenatal Care". Dr. F. C. Pace, medical consultant, special weapons section, Civil Defence Health Services, spoke on "Effects of Mass Destructor Weapons on Civilian Targets" and on "Medical Organization for Civil Defence". Dr. Charles J. Fisher, department of medicine, Northwestern University, Chicago, spoke on "Recent Advances in the Medical Treatment of Hypertension and Cardiovascular Disease". Dr. E. E. Avery, consultant in cardiovascular surgery, Northwestern University, spoke on "Recent Advances in Cardiac and Chest Surgery".

Dr. Harry Bain, consultant physician, Hospital for Sick Children, spoke on "Some Pædiatric Problems of Interest".

Mr. R. D. Beaman addresed one luncheon meeting and Dr. J. C. C. Dawson addressed the other.

At the Kingston district meeting the following papers were given: "The Role of Plasma Volume Expanders in the Treatment of Shock, with particular reference to Dextran" by Dr. H. A. Dunlop; "Treatment of Acute Crush Injuries of the Chest" by Dr. W. R. Ghent; "Treatment of Acute Head Injuries" by Dr. H. M. Warner; "Principles of Treatment of Acute Infections of the Hand" by Dr. S. W. Houston; "Treatment of Acute Cholecystitis" by Dr. D. W. Boucher; "Fractures of the Spine with Cord Damage—First Aid and Early Treatment" by Dr. W. J. S. Melvin; "Acute Arterial Occlusion and Injury—Principles of Treatment" by Lt.-Col. A. C. Derby; "Acute Cardiac Arrest—Its Prevention and Treatment" by Dr. J. H. S. Mahood.

Guest speakers at the dinner were Dr. J. C. C. Dawson and Dr. J. S. Crawford, who is Director of Physical Medicine and Rehabilitation, Toronto Western Hospital and Assistant Director of Physical and Occupational Therapy, University of Toronto.

The district meeting held at Stratford was addressed by Dr. John Beale on "Diagnosis of Virus Disease", by Dr. E. H. Botterell on "Traumatic Surgery", and by Dr. Leonard Lovskin on "Diagnosis of Functional Disease".

In the evening the delegates attended the Shakespearean Festival for the performance of *Julius Caesar*.

Dr. A. B. LeMesurier, consulting surgeon to the Hospital for Sick Children, Toronto, received a special honorary citation at the 24th annual meeting of the American Society of plastic and Reconstructive Surgery. He is the first Canadian to receive the award.

In 1954 there were 307 deaths from tuberculosis in Ontario. This is a rate of 6.1 per 100,000 population, the second lowest rate in Canada. Saskatchewan is lowest with a rate of 4.8. LILLIAN A. CHASE

QUEBEC

Dr. Allen B. Noble has been appointed Anæsthetist-in-Chief at the Royal Victoria Hospital in Montreal. He took over the position on November 1, 1955, from Dr. F. A. H. Wilkinson, who has resigned because of ill health. Dr. Noble graduated in medicine from the University of Toronto, interned at the Toronto General Hospital and spent five years in general practice at Brampton, Ontario, before resuming training in Montreal hospitals in 1941. From 1942 to 1946, he served with the R.C.A.M.C.

Dr. Noble returns to Montreal from Kingston, Ontario, where he was Chief Anæsthetist at the Hôtel-Dieu Hospital and lecturer at Queen's University. He is president of the Canadian Anæsthetists Society and a Fellow of the American College of Anæsthesiologists.

Dr. A. R. Elvidge, assistant professor of neurosurgery at McGill University and associate neurosurgeon at the Montreal Neurological Institute, and Dr. Jean Sirois of Quebec City, left by air for Brussels, Belgium, to attend meetings planning the 6th Neurological Congress there in 1957.

Dr. Wilder G. Penfield, Director of the Montreal Neurological Institute, left Montreal last month by air for Russia. He was invited by the præsidium of the Soviet Academy to lecture during the latter part of September before the Soviet Academy of Sciences in Moscow. These lectures, given in English and translated, dealt with medical, physiological and psychological subjects associated with the structure and function of the human brain and the treatment of focal epilepsy.

The Bell Telephone Company of Canada recently announced important changes in their medical staff. Dr. W. H. Cruickshank, who has been Medical Director with the company since 1945, will be Assistant Vice-President, Personnel Division. Dr. Donald Bews, who has been Regional Medical Director of the eastern region for the company, will succeed Dr. Cruickshank. These changes were effective on October 1, 1955.

It is a pleasure to report that the Institute of Cardiology at the Maisonneuve Hospital in Montreal has received a further federal health grant of $45,000. This institution, which opened its doors in 1954, is the first

of its kind in the Province and, I believe, in Canada. In the short time in which the Institute has been opened, its reputation has become such that patients have gone there from Ontario, the Maritime Provinces and the United States. A great deal of the efforts of the Institute are devoted to research in heart diseases. We are certain that its contributions to Canadian medicine over the coming years will be great.

The Annual Joint Conference of the Industrial Medical Association of the Province of Quebec with the Section of Industrial Medicine of the Ontario Medical Association was held on September 15, 16 and 17 at Chicoutimi and Arvida, Quebec. Some 90 out-of-town members of the two societies registered for this meeting and the excellent programme included scientific sections and visits to plants and hospitals, as well as social entertainments. Meetings during the first day were held at the Hôtel-Dieu St. Vallier in Chicoutimi. The second day, meetings were held at the Aluminium Laboratories in Arvida. One outstanding feature of this meeting, during the third day, was a symposium on "The Medical Aspects of Atomic Weapons". This was presented in the Hôtel-Dieu St. Vallier, under the chairmanship of Dr. Edwin A. Turcot, the Past President of the Quebec Society. Dr. F. C. Pace, Medical Consultant, Civil Defence Health Services, Ottawa, emphasized that mass casualties can be expected from an atomic attack. He also stressed the possibility of surprise in such an attack. Dr. K. C. Charron, Director of Civil Defence Health Services, Ottawa, spoke on the changing concept in Civil Defence Health Services planning, with particular reference to the role of the industrial physician. He showed coloured slides that he had taken at the last Nevada experimental explosion. These were adequate evidence of the tremendous forces released in this type of blast. The last speaker during the symposium was Lieut.-Col. A. C. Derby, Kingston Military Hospital, who discussed the problem of the handling of mass casualties. He emphasized planning in reference to mass casualties from atomic attack; 60% of these casualties would be burns of a greater or lesser degree. Many of these would be complicated by irradiation or traumatic injuries.

A very pleasant programme had been planned for the ladies. In bringing the three-day proceedings to an end, Dr. Charles D. Shortt, President of the Quebec Society, and Dr. J. Kenneth Bell, President of the Ontario Society, expressed appreciation to all those who had contributed to its success. A. H. NEUFELD.

NEW BRUNSWICK

The Madawaska Medical Society was host to the members and guests of the New Brunswick Medical Society at its 75th Annual Meeting at St. Andrews. Dr. A. H. Sormany of the host branch was general chairman and with his various committees provided an excellent programme.

The following officers were elected for 1955-56: President, Dr. W. Ross Wright, Fredericton; First Vice-president, Dr. J. H. M. Rice, Campbellton; Second Vice-president, Dr. F. C. Jennings, Saint John; Treasurer, Dr. Norman S. Skinner, Saint John; Secretary, Dr. F. L. Whitehead. Executive Committee: Dr. D. A. MacLennan, Campbellton; Dr. S. R. Webber, Calais; Dr. O. E. Morehouse, Upper Keswick; Dr. E. F. Woolverton, Woodstock; Dr. Paul Melanson, Moncton; Dr. Stephen Clark, Lancaster; Dr. Donald C. Moore, Bathurst; Dr. Darius Albert, Edmundston; Dr. A. L. Winsor, Norton; Dr. R. H. Morrisey, Newcastle. Representative to C.M.A. Executive, Dr. G. M. White. Representative to C.M.A. Nominating Committee, Dr. A. Van Wart. Additional Members, C.M.A. Council, Dr. B. E. Pothier, Dr. G. F. Skinner and Dr. A. H. Sormany.

Dr. T. C. Routley, President of the C.M.A. and B.M.A., bears a heavy load of honours proudly won by his labours for the good of organized medicine, and his visit to New Brunswick this year gained him an honorary citizenship in the "Republic of Madawaska". The token of his admission to this select organization was presented by Dr. P. C. Laporte of Edmundston. Among his fellow honorary citizens of the "Republic" are Prime Minister St. Laurent, Lieutenant-Governor MacLaren of N.B. and Premier Hugh John Flemming of N.B. For our members of inquiring mind, the "Republic of Madawaska" is bounded by the Province of Quebec, the State of Maine, and the remaining fraction of New Brunswick.

Dr. J. A. Melanson, Chief Medical Officer of the Department of Health for New Brunswick, was elected President of the Canadian Public Health Association at the annual meeting held in Edmonton September 6-8.

Dr. Lionel Guravich and Dr. F. George discussed "Diabetes Mellitus in Some of its Atypical Aspects" at the monthly standardization meeting at Lancaster D.V.A. Hospital in September.

Dr. Robert A. Gregory has been appointed Superintendent of the Provincial Hospital at Lancaster, N.B., to succeed Dr. E. C. Menzies, retired. Dr. Gregory joined the staff of the hospital in 1934 and since 1938 he has been Assistant Superintendent. He has had much postgraduate study in his specialty in the United States and Britain.

Dr. Ronald D. Nixon has been appointed Director of the Saint John Mental Health Clinic to succeed Dr. Ora Smith.

The Honourable J. F. McInerney, M.D., Minister of Health for New Brunswick, has been appointed to the Board of Governors of St. Francis Xavier University.

The contract for further construction at the Provincial Mental Hospital at Campbellton has been awarded. The amount to be expended is $2,398,448. Completion of the contract is set for 1957. The hospital now has a capacity of 250 beds. The new building will add 300 more beds, and ultimately a 1,200-bed capacity is anticipated.

SCIENTIFIC PROGRAMME—ANNUAL MEETING—N.B. MEDICAL SOCIETY, 1955

The Scientific Programme of the 75th Annual Meeting of the New Brunswick Medical Society, held in the Algonquin Hotel at St. Andrews, included papers by several guest speakers. Dr. J. G. Petrie of Montreal spoke on "Treatment of Fracture of the Shaft of the Femur, Simple and Compound" and "Use of Hydrocortone in Orthopædics". Dr. E. F. Brooks of Toronto presented a paper on "The Comatose Patient" and another on "Cerebral Vascular Lesions" and took part in a question-and-answer panel on general medical topics. Dr. Albert Jutras of Montreal discussed "Present-Day X-ray Methods of Exploring the Biliary Tract, Before, During and After Cholecystectomy", and the following day talked on "Early Diagnosis of Gastric Cancer".

Distinguished visitors included Dr. T. C. Routley, who has for years been an honorary member of the New Brunswick Medical Society. Dr. Routley's visit was especially appreciated because all of us knew the extra burden he carries as President of the C.M.A. and B.M.A.

Dr. S. S. B. Gilder was welcomed as a newcomer to our Society and the opinion was expressed that the editor of the *Canad. M. A. J.* would be a useful as well as welcome visitor to all provincial meetings as frequently as his duties would allow.

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Dr. A. F. W. Peart made a number of new friends and it is hoped he will often return to this province to cement relations begun this year. A. S. KIRKLAND

NEWFOUNDLAND—
ANNUAL MEETING

The 30th annual meeting of the Newfoundland Medical Association (C.M.A., Newfoundland Division) took on a new look this year during the recent convention in St. John's, September 12-14, 1955.

Several general practitioners throughout the Island were invited to present papers which related to problems and experiences in their respective localities, and covered such interesting subjects as "Treatment of Shock in a Cottage Hospital" and "Some Aspects of Transport of Sick by Air in Newfoundland". This innovation stimulated considerable interest in the meeting, with the result that the convention had one of the best attendances in recent years.

The meeting was opened by His Worship, Mr. Harry Mewes, Mayor of St. John's, who gave a warm message of welcome to all those who were visiting the city.

The very full scientific programme included 25 individual papers as well as two sessions for the presentation and discussion of clinical cases, and a clinicopathological conference. Although the programme was full, the meeting was well conducted and chairmen of the scientific sessions ensured that papers were given promptly and according to schedule.

The social events of the meeting left nothing to be desired. The annual dinner of the Association was held on Monday evening, September 12. Dr. R. J. Simms reviewed briefly his year as President of the Newfoundland Medical Association, after which two excellent addresses were presented by Dr. F. G. Robertson, Parliamentary Assistant to the Minister of National Health and Welfare, and Dr. T. C. Routley, President of the B.M.A. and C.M.A.

The annual dance was held the following evening at the Old Colony Club. The setting was ideal for this function and the club was filled to capacity.

The ladies also had a full programme. Along with the evening functions which they attended with their husbands, a luncheon and fashion show was held on Tuesday, September 13, at Murray's Pond Country Club. The following day, Mrs. J. W. Blackler entertained the ladies with a morning coffee party at her home in St. John's.

The meeting was most successful in every respect and the physicians and their wives who were responsible for arranging the scientific and social programme are to be congratulated.

PRINCE EDWARD ISLAND—
ANNUAL MEETING

The annual meeting of the Medical Society of Prince Edward Island (Prince Edward Island Division of the C.M.A.) was held in Charlottetown on Monday and Tuesday, August 29 and 30. An extremely good attendance was recorded; practically all of the 74 active members of the Society attended some portion of the meeting, and the whole atmosphere was most enthusiastic. This record of attendance puts to shame that in many other regional societies. The scientific meetings and the commercial exhibition of pharmaceutical and other products were held in the Prince of Wales College. The clinical speakers were Dr. Edward F. Brooks, Assistant Professor of Medicine, University of Toronto, and Chief of Medicine, St. Michael's Hospital, Toronto; and Dr. J. Gordon Petrie, Assistant Professor of Surgery, McGill University, and Orthopædic Surgeon, Royal Victoria Hospital, Montreal. It was generally agreed that the level of clinical presentation was extraordinarily high. The Canadian Medical Association was represented by Dr. T. C. Routley, President, Dr. A. F. W. Peart, Assistant General Secretary, and Dr. S. S. B. Gilder, Editor of C.M.A. Journal; all of these were invited to speak at various functions.

The meeting began with a business session (Dr. J. K. L. Irwin presiding) which did not take very long. The Public Health Committee recorded a severe epidemic of infectious hepatitis earlier in the year, and a record low mortality from tuberculosis. Unfortunately, as in other areas, the fall in mortality was not accompanied by a corresponding fall in morbidity. Poliomyelitis vaccination had been given to approximately 90% of all pupils in Grades 1 and 2; only three cases of polio had been reported this year. There has, however, been an epidemic of non-paralytic illness resembling polio but not exactly identified.

A forum on health insurance was conducted by Drs. J. H. Maloney, L. E. Prowse, J. H. Shaw and J. A. MacMillan. Dr. Maloney wittily emphasized the change in public opinion toward health insurance and disposed of Karl Marx by saying that if the latter had not suffered from prolapsed piles, boils on the neck, tuberculosis and six children, he would never have spewed up *Das Kapital*. Dr. Shaw sketched the history of health insurance in Canada and Dr. MacMillan discussed the local aspects of the problem, while Dr. Prowse described a model plan for P.E.I.

Dr. J. B. Downing was elected president for the forthcoming year, with Drs. J. H. Maloney and T. A. Laidlaw as vice-presidents.

The social activities at this meeting were of a vigorous nature. On Monday night 120 persons came to the Clover Club for a session of square dancing conducted by the incomparable Dr. Joe MacMillan, and on Tuesday the society held its annual ball at the Hotel at Dalvay-by-the-Sea.

On Monday, the Charlottetown Hospital gave a luncheon to the society at which the Hon. W. J. P. MacMillan was in the chair and Dr. T. C. Routley the speaker. On Tuesday the P.E.I. Hospital entertained the society; Dr. E. S. Giddings was in the chair and Dr. A. F. W. Peart was the guest speaker.

Dr. Routley made a return trip on the following week to receive the freedom of the City of Charlottetown. This event is reported in full elsewhere (page 752).

NOVA SCOTIA—
ANNUAL MEETING

The Nova Scotia Medical Society broke new ground at its 102nd annual meeting, which it held in Amherst at the Fort Cumberland Hotel. The meeting began on Tuesday, September 6, with meetings of the Executive Committee and also a preliminary discussion on public relations.

On Wednesday, September 7, the members were officially welcomed by Dr. W. O. Coates on behalf of the Mayor of Amherst who was unable to attend. Papers were given on physical medicine by Dr. G. J. H. Colwell of Halifax, on hip conditions by Dr. J. G. Petrie of Montreal, on emergencies in the aged by Dr. J. A. McDonald of Glace Bay, N.S., and on the comatose patient by Dr. E. F. Brooks. The luncheon speaker was the doyen of local editors, Mr. N. S. Sandford, who has for some years edited with distinction the *Amherst Daily News and Sentinel*. On Wednesday, proceedings closed with a most enjoyable dance which included both ballroom and square dancing.

On Thursday the Nova Scotia General Practitioners' Society met in conjunction with the local chapter of the College of General Practice. The highlight of the morning was a panel discussion on public relations which was chaired by Dr. F. J. Barton and had as remaining members of the panel Dr. J. C. Wickwire, Dr. H. J. Devereux, Mr. Eric R. Dennis and Mr. L. W. Holmes, the newly appointed assistant secretary of the Canadian Medical Association in charge of public relations. This combination of physicians and laymen pro-

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NOVA SCOTIA MEDICAL SOCIETY, 1955 ANNUAL MEETING, AMHERST, N.S.

The good-natured atmosphere of the public relations forum, with medical and lay representation, is well exemplified by this shot of (left to right) Dr. J. C. Wickwire, Liverpool; Dr. Harold Devereux, Sydney; Dr. F. J. Barton, Dartmouth; Mr. Eric Dennis, Halifax; Mr. L. W. Holmes, Assistant Secretary, C.M.A.

duced some entertaining comments on the relationships between the medical profession as a whole and the general public. The luncheon speaker was Dr. Gilder, editor of the *Canadian Medical Association Journal*.

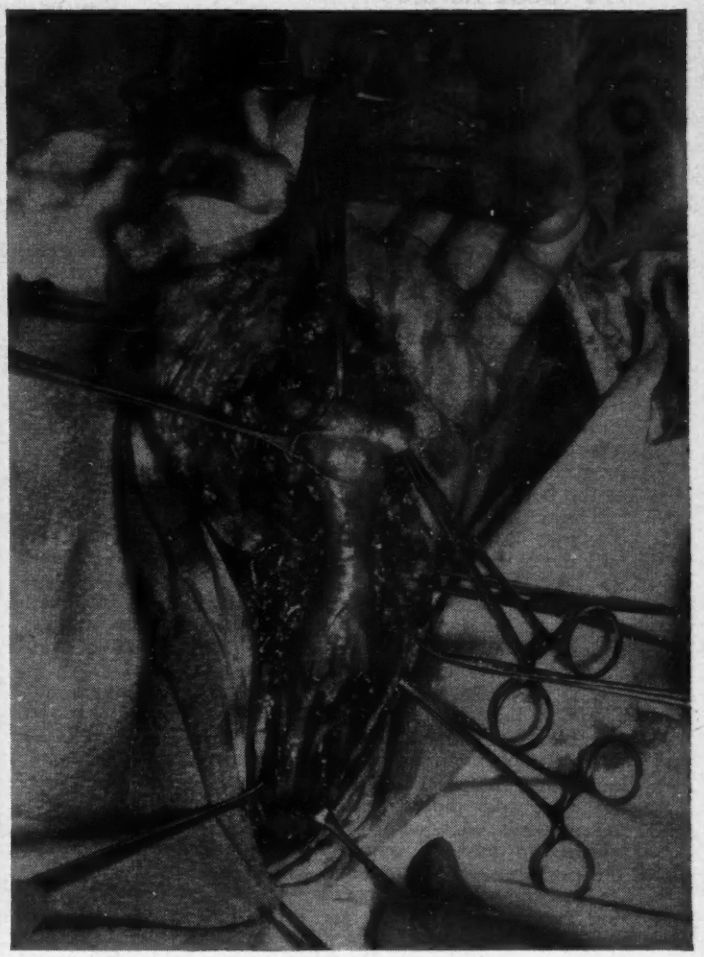
In the evening the annual dinner of the Society was preceded by a reception by Dr. and Mrs. D. M. Cochrane, the outgoing President and his lady, and Dr. J. E. Park and Mrs. Park, President of the Cumberland Medical Society, and his lady. At the annual dinner the presidential address was given by Dr. Cochrane and the guest speaker was Dr. T. C. Routley, President of the Canadian and the British Medical Associations. The incoming President, Dr. R. O. Jones of Halifax, was installed. The evening concluded with a presentation of golf prizes, and the meeting of the Society ended next morning at the official business session.

Left: Dr. and Mrs. D. M. Cochrane, River Hebert, take time out from the official duties of the president and his lady.

Dr. A. G. MacLeod (left), Dartmouth, is not too sure about the argument Dr. R. G. Wood, Lunenburg, has just put up.

The Presidents' ladies get together over a cup of coffee. A charming snap of Mrs. Routley (left) and Mrs. Cochrane.

Tumor of the left hand.



Resection of tumor.

Photographs: DAVID LUBIN, Medical Illustration Service, U. S. V. A. Hospital, Cleveland 30, Ohio

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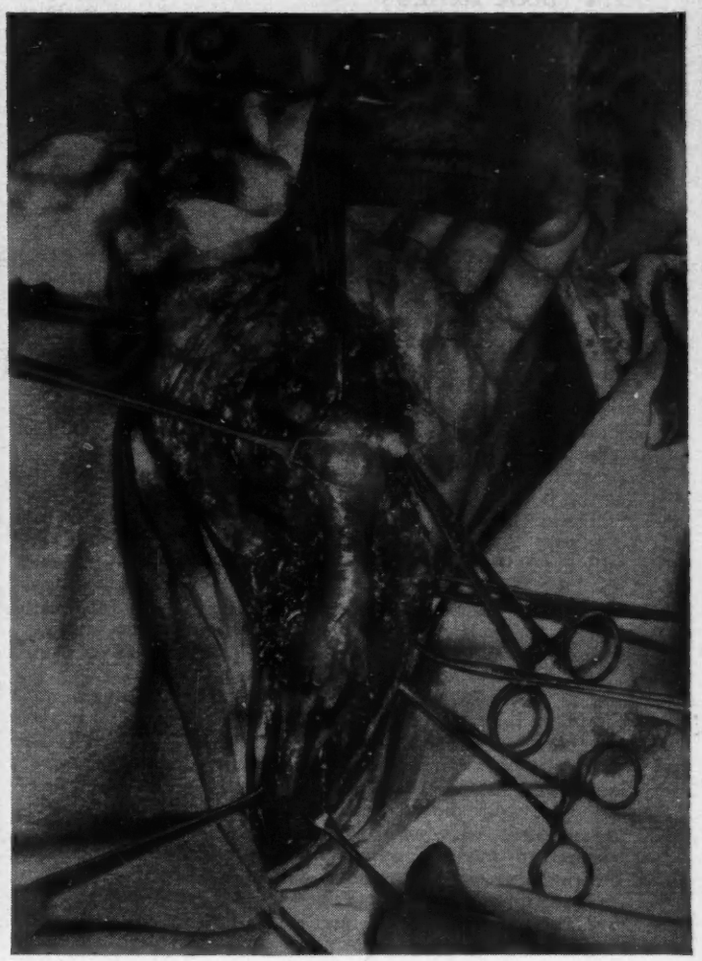
The Presidents' ladies get together over a cup of coffee. A charming snap of Mrs. Routley (left) and Mrs. Cochrane.

Tumor of the left hand.



Resection of tumor.

Photographs: DAVID LUBIN, Medical Illustration Service, U. S. V. A. Hospital, Cleveland 30, Ohio

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BOOK REVIEWS

THE MEDICAL CARE OF THE AGED AND CHRONICALLY ILL

With Particular Emphasis on Degenerative Disorders, Advanced Cancer and Other As Yet Incurable Diseases. F. Homburger, Research Professor of Medicine, Tufts College Medical School, Boston, Massachusetts. 253 pp. $5.75. Little, Brown & Company, Boston and Toronto, 1955.

A good deal contained in this little book may also be found in more comprehensive textbooks and medical journals. Yet the author has done a service in bringing together the information most helpful to the busy practitioner when he faces the chronically ill and aged at the bedside.

There is now hope and help for many for whom in the past the physician thought he could do little, if only he will apply recent advances in his daily work. As Dr. Homburger rightly points out, medicine has often been guilty of procrastination in bringing into use and to the patient the fruits of new knowledge, and it is procrastinating once more in the management of the ills of old age and long-term chronic illness.

The physician should know that a colostomy is no calamity but can function so that a normal life is possible. He should know that the stroke that fells a patient may not mean the end of active life. He should know how to select those patients who can be rehabilitated, and should rehabilitate them or refer them to someone who will do so. If a physician has not learned in medical school how to manage effectively the problems of a paraplegic patient, he should not pass up the opportunity that now exists, and should try to find the specialists who are interested in the modern management of paraplegia. The aches and pains of old ladies need no longer be taken as inevitable, but may be due to osteoporosis. Gouty attacks may be prevented and the metabolism of such patients kept fairly normal by modern management. The arthritic patient must no longer be allowed to become a helpless prisoner of his joints without a struggle employing all the weapons in the present-day therapeutic armamentarium.

Dr. Homburger advocates giving more time to the elderly "nuisance patient". He recommends evaluation from all possible angles of the nature of his many complaints and a programme of total care.

There are short chapters on osteoporosis, arthritis, malnutrition, advanced cancer, hemiplegia and paraplegia, and the management of distressing complications of chronic illness of the urinary, gastrointestinal and central nervous systems. The concluding chapter deals briefly with nursing problems.

Many will agree with most of the author's suggestions. It is a book well worth reading.

OLD AGE IN THE MODERN WORLD

Report of the Third Congress of the International Association of Gerontology, London, 1954. 647 pp. $6.00. E. & S. Livingstone Ltd., Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1955.

The material in this volume has been arranged extremely well. Various aspects of the economic, social, psychological and medical problems associated with aging are dealt with in separate chapters. The material consists mainly of authoritative reviews and reports of new work. One is impressed by the conciseness of the reports and the absence of irrelevant reading matter.

Unfortunately the reports from Canada on the care of the aged were limited in subject matter to a National Programme for Older People and Residential Care. Although the reports are well presented, because of their limitations they leave the reader with the impression that Canada is making very little progress compared to such countries as Britain and the U.S.A. A number of factors, some of which are mentioned by the speaker, alter the circumstances of this comparison and should be considered before judgment is passed on Canada's efforts. However, considerable progress has been made. Since 1949 the government of the Province of Ontario has contributed approximately $12,000,000 for housing her elderly citizens. During this time, 28 new homes, additions or extensions have been erected under the Homes for the Aged Act and 11 under the Charitable Institution Act. Thirteen more homes for the aged and six charitable institutions are planned. Under the Elderly Person's Housing Aid Act, nine projects have been completed and 15 more projects are under construction or planned. Legislation has been enacted to provide special home care for elderly persons in private homes. During 1954 a section of geriatrics was formed in the Ontario Medical Association and now the Ontario Geriatric Society has been incorporated to raise funds for research in problems associated with aging. It would appear that in Ontario, where the reviewer is most familiar with the situation, our efforts in the care of the aged, although not ideal, are progressing satisfactorily.

The results of seven years of adult counselling service under the National Employment Service of the Unemployment Insurance Commission of Canada are well presented. The whole chapter on employment of older workers contains much valuable information.

Studies in the fields of nutrition, neuropsychiatry and cardiovascular diseases associated with aging include laboratory and clinical investigations as well as authoritative opinions. The chapters dealing with these subjects are most informative.

This publication should prove invaluable to all those working in the field of geriatrics.

THE HEALTH OF THE ELDERLY AT HOME

A Medical, Social and Dietary Study of Elderly People Living at Home in Sheffield. W. Hobson, Professor of Social and Industrial Medicine, and J. Pemberton, Senior Lecturer in Social and Industrial Medicine, the University of Sheffield, England, in collaboration with E. R. Bransby and others. 238 pp. Illust. Butterworth & Co. Ltd., London and Toronto, 1955.

As an early survey in a neglected field, this study of elderly people living at home will be useful to other workers accumulating base-line data. The material has been assembled conscientiously, but the study includes some examples of how *not* to use the statistical method.

The original sample included one out of every 30 persons of pensionable age in Sheffield. This was a good social cross-section of the pensioners of Sheffield, but as a medical sample it left something to be desired. Females were included from age 60 and males from age 65. Since females live about two years longer than males, there was a physiological seven-year spread between the two sexes. The rate of change in the degree of fitness is high in the late sixties. The method of sampling, therefore, covers up a degree of disability in the physiologically old by a top dressing of "middle-aged" females.

To simplify a dietary survey, the sample was further distorted by deleting those old persons living with relatives or living in institutions. This removed from the sample the majority of the disabled persons. A further error was introduced by the refusal of 138 persons to accept medical examination. As the authors themselves state, caution should be exercised in applying the results generally.

In the body of the report there are some very interesting paragraphs such as that describing the deteriora-

tion found in vibration sense with age. The dietary survey probably shows this age group in a state of optimum nutrition. Prices were artificially low on rationed food, providing a good balanced diet. The cases of nutritional anæmia are explored fully.

Blood chemistry studies include serum cholesterol, blood urea, serum calcium and serum alkaline phosphatase. The incidence of Paget's disease of bone was 8.6% in men and 2.2% in women. As some of the calculated normals include these persons, they are suspect.

The chapter on employment, retirement and health is valuable. Data from the original social survey are included and are probably a true index of the employability of these age groups.

One example of the all too frequent misuse of statistical methods will suffice. On page 26 it is stated that there was no relation between the presence of vertigo and the height of the systolic or diastolic blood pressure. This statement is true but misleading rather than helpful. Vertigo (a symptom complex) and hypertension (a sign) are produced by differing but overlapping known causes. Where their causes overlap there *will be* correlation between them. A simple listing of the causes of each would avoid irrelevant statistical comparison.

THE GENESIS AND PREVENTION OF CANCER

W. S. Handley, Senior Consulting Surgeon to the Middlesex Hospital. 320 pp. Illust. 2nd ed. John Murray, Albemarle Street, W., London, 1955.

The author of this book has been recognized as a surgeon of wide experience, particularly in the field of cancer of the breast. He presents his personal interpretation of the factors which he believes to contribute to the development and growth of cancer, and also its possible prevention.

Although he uses the generic term "cancer", he makes little reference to the major aspects of the problems of such tumours as soft tissue neoplasms or endocrine neoplasms. His concern is almost exclusively with neoplasms of the skin. The facts which he presents dealing with the part played by *Treponema pallidum* and *Mycobacterium tuberculosis* are hardly accepted at the present time, nor is his major thesis of the importance of lymph stasis as a cause of cancer any more reasonable.

The book is extensively documented with references which are of greater historic interest than of factual value. It is felt that the publication does not add anything new to the present knowledge of cancer.